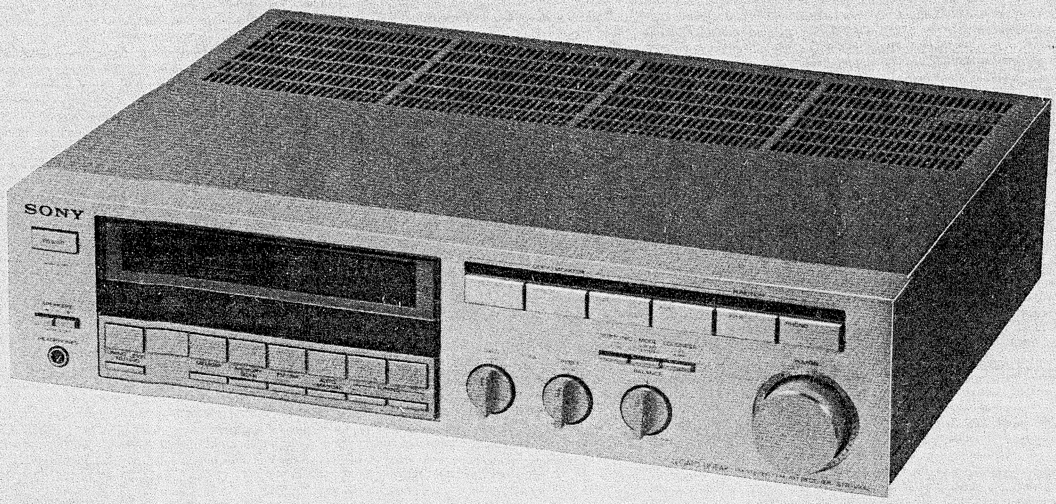
9064

STR-VX4L

UK Model



FM STEREO/FM-AM RECEIVER

SPECIFICATIONS

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT
À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES, LES VUES EXPLOSÉES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

AMPLIFIER SECTION

Continuous RMS Power Output:	(less than 0.008 % THD, both channels driven simultaneously) At 20 Hz–20 kHz 40 + 40 watts (8 ohms)
Harmonic Distortion:	Less than 0.008 % at rated output
Damping Factor:	50 at 1 kHz, 8 ohms
Dynamic Headroom:	1.4 dB*
Intermodulation (IM) Distortion:	(60 Hz : 7 kHz = 4 : 1) Less than 0.008 % at rated output

— Continued on page 2 —

MICROFILM

SONY®

SERVICE MANUAL

Residual Noise: Less than 120 µV at 8 ohms, network A

Inputs

	Sensitivity	Impedance	S/N	Weighting network
PHONO	2.5 mV	50 k ohms	82 dB 75 dB*	A
TAPE 1, 2	150 mV	50 k ohms	105 dB 80 dB*	A
AUX	150 mV	50 k ohms	105 dB 80 dB*	A

* '78 IHF

Measured with rated output power into 8-ohm loads (both channels driven simultaneously) at 1 kHz.

Outputs (with rated Input)

REC OUT 1, 2	Voltage 150 mV, Impedance 4.7 k ohms
HEADPHONES	Any low and high impedance headphones are recommended.
SPEAKER A, B	Any speakers of 4–16 ohms are recommended.

Frequency Response PHONO: RIAA equalization curve ±0.5 dB
AUX, TAPE 1, 2: 5 Hz–90 kHz $^{+0}_{-1}$ dB

Tone Controls: BASS: ±8 dB at 100 Hz
TREBLE: ±8 dB at 10 kHz

Loudness Control (att. 30 dB): +8 dB at 50 Hz, +2 dB at 10 kHz

Subsonic Filter: 12 dB/octave attenuation below 15 Hz

FM TUNER SECTION

Tuning Range: 87.5–108 MHz

Antenna Terminals: 300 ohms, balanced
75 ohms, unbalanced

Intermediate Frequency: 10.7 MHz

Sensitivity at 46 dB Quieting: 4.5 µV (mono)
45 µV (stereo)

Usable Sensitivity: 11.2 dBf, IHF 2 µV
1.7 µV (S/N = 26 dB, 40 kHz deviation)

Signal-to-noise Ratio (40 kHz Deviation): 77 dB (mono), 72 dB (stereo)

Harmonic Distortion (40 kHz Deviation): 0.08 % (mono), 0.2 % (stereo) at 100 Hz
0.08 % (mono), 0.15 % (stereo) at 1 kHz
0.1 % (mono), 0.2 % (stereo) at 6 kHz

Separation: 40 dB at 100 Hz
45 dB at 1 kHz
40 dB at 6 kHz

Frequency Response: 40 Hz–12.5 kHz ±0.5 dB
30 Hz–15 kHz $^{+0.5}_{-1.5}$ dB

Alternate Channel Selectivity: 80 dB (300 kHz)

Capture Ratio: 1.0 dB

AM Suppression Ratio: 54 dB

Image Response Ratio: 85 dB

IF Response Ratio: 100 dB

Spurious Response Ratio: 95 dB

RF Intermodulation: 65 dB (IHF)

Sub-carrier Product Ratio: 45 dB

Muting Threshold: Approx. 20 dBf, 5.5 µV

Auto Tuning Level: LOW: 20 dBf
MID: 40 dBf
HIGH: 60 dBf

MW/LW Tuner Section

		MW	LW
Tuning range		522–1,602 kHz	155–344 kHz
Antenna		Ferrite-bar antenna External antenna terminal	
Intermediate frequency		450 kHz	
Usable sensitivity	ferrite-bar antenna	300 µV/m at 999 kHz	500 µV/m at 230 kHz
	external antenna	100 µV/m at 999 kHz	150 µV/m at 230 kHz
Signal-to-noise ratio		54 dB	54 dB
Harmonic distortion		0.5 %	0.5 %
Selectivity		40 dB at 9 kHz	40 dB at 9 kHz

GENERAL

System: Tuner Section: PLL quartz-locked digital synthesizer system
Equalizer amp section: IC op-amp, NF type
Tone amp section: NF type
Power amp section: Pure-complementary DC amp

Power Requirements: 240 V ac, 50/60 Hz

Power Consumption: 400 W

Dimensions: Approx. 430 x 105 x 375 mm (w/h/d)
(17 x 4¼ x 14⅞ inches)
including projecting parts and controls

Weight: Approx. 7.8 kg (17 lb 3 oz) net
Approx. 8.8 kg (19 lb 6 oz) in shipping carton

Handling Precautions for MOS ICs

Generally, the insulation resistance of the oxide layer in MOS IC structures is very high, and the oxide layer is very thin. Because of this, it is possible that the static voltages usually present on clothes and the human body will be enough to generate a potential difference across the insulator, high enough to cause a breakdown of the insulating layer.

The following precautions should be taken while handling these ICs.

(Particular care should be taken under conditions of low humidity.)

Precautions in Replacing MOS ICs

1. Store new ICs by inserting them into a urethane-polyester cushion (which is somewhat conductive), or wrapping it in aluminum foil, so that all the pins are at the same potential.
   (The ICs should be stored in that manner until mounted on the circuit board.)

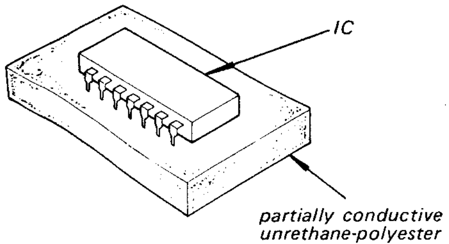

IC
partially conductive unrethane-polyester cushion

Fig. A

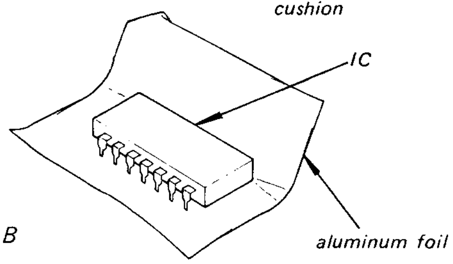

IC
aluminum foil

Fig. B

2. Check the soldering iron for possible power-line leakage current. Make sure that there is no leakage path by connecting an ohmmeter to the tip of the soldering iron and the plug as shown in Fig. C. If there is a leakage path, use some other soldering iron.

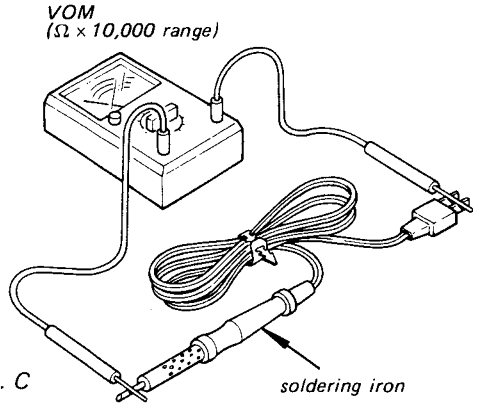

VOM
(Ω x 10,000 range)
soldering iron

Fig. C

3. Equalize any potential difference between the clothes, the tools in use, the work bench, the set being worked on, and the packaged IC by touching them all in succession with the hands or a conductive wire or tool.
4. The following are effective methods for handling ICs that remove the potential difference across the oxide layer.
   - Use a paper clip modified by soldering in a wire braid insert.

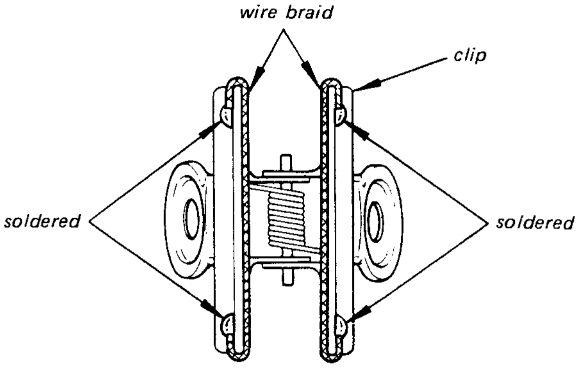

wire braid
clip
soldered
soldered

Fig. D

Make sure that there is no solder on the inside.

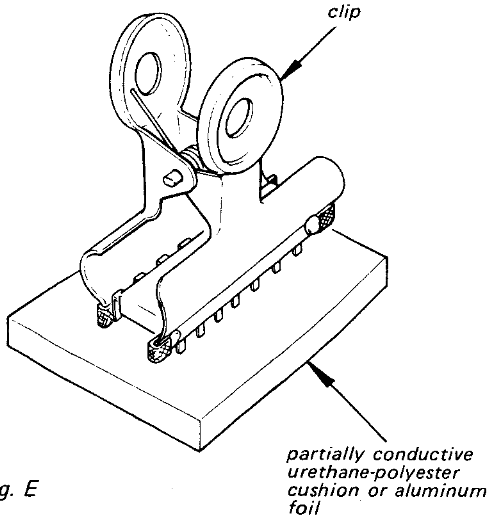

clip
partially conductive urethane-polyester cushion or aluminum foil

Fig. E

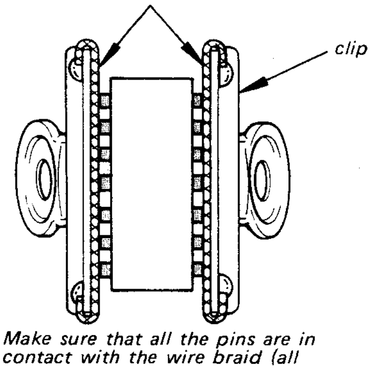

wire braid
clip

Fig. F

Make sure that all the pins are in contact with the wire braid (all the pins will then be at the same potential.).

- Take a short length of fine bare wire and wind it around the IC so that it shorts all the pins of the IC, while it is still in the urethane-polyester cushion or aluminum foil. This ensures that all the pins are at the same potential.

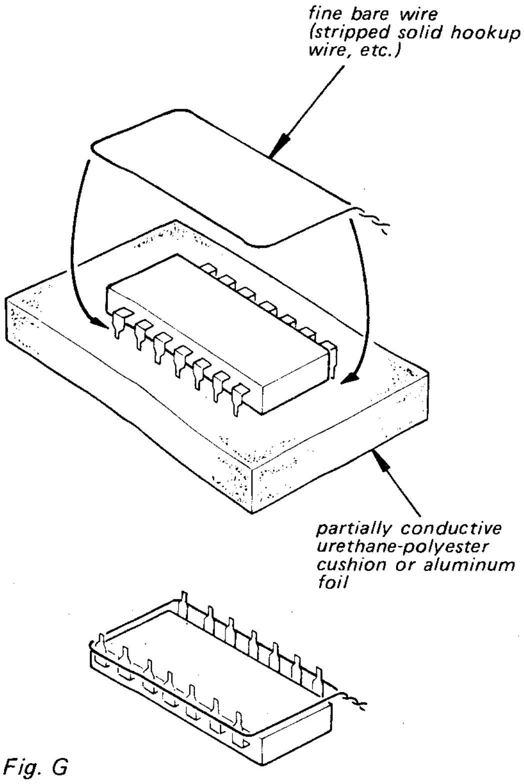

fine bare wire
(stripped solid hookup wire, etc.)
partially conductive urethane-polyester cushion or aluminum foil

Fig. G

- When it is necessary to handle the IC with the fingers, do not touch any pin, and hold the IC at the ends of its plastic-package case as shown in Fig. H.

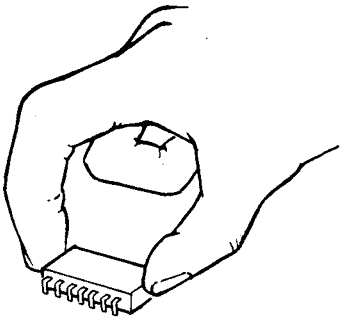


Fig. H

5. Method of Mounting
Insert the IC while holding it with the modified clip, and solder all the pins with the clip still shorting the pins. (Similarly, solder all the pins while the bare shorting wire is still wound around them.). Remove the clip or the bare shorting wire only after all the pins have been soldered.

Precaution while Checking C-MOS ICs

The C-MOS ICs (Complementary MOS) are MOS ICs that have their output sections made up of N-channel and P-channel push-pull stages to increase their speed of operation. If the output terminal of these ICs comes into contact with B+ or B- voltage, then the FET which is ON at that time will either become shorted or open.

This is valid for all the output sections that are connected together by the interconnections. Even the circuits that are physically separated (and not on the same board) can be destroyed simultaneously.

Example:

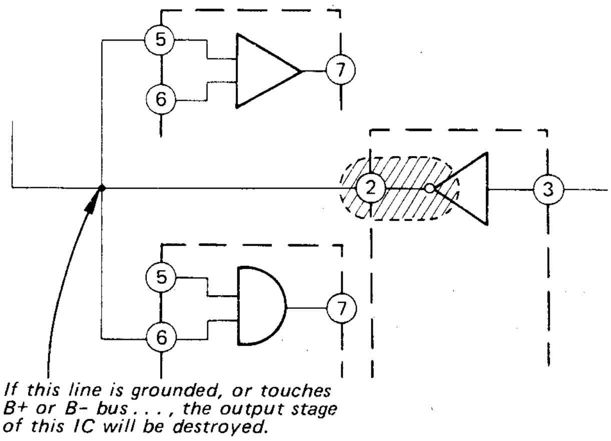
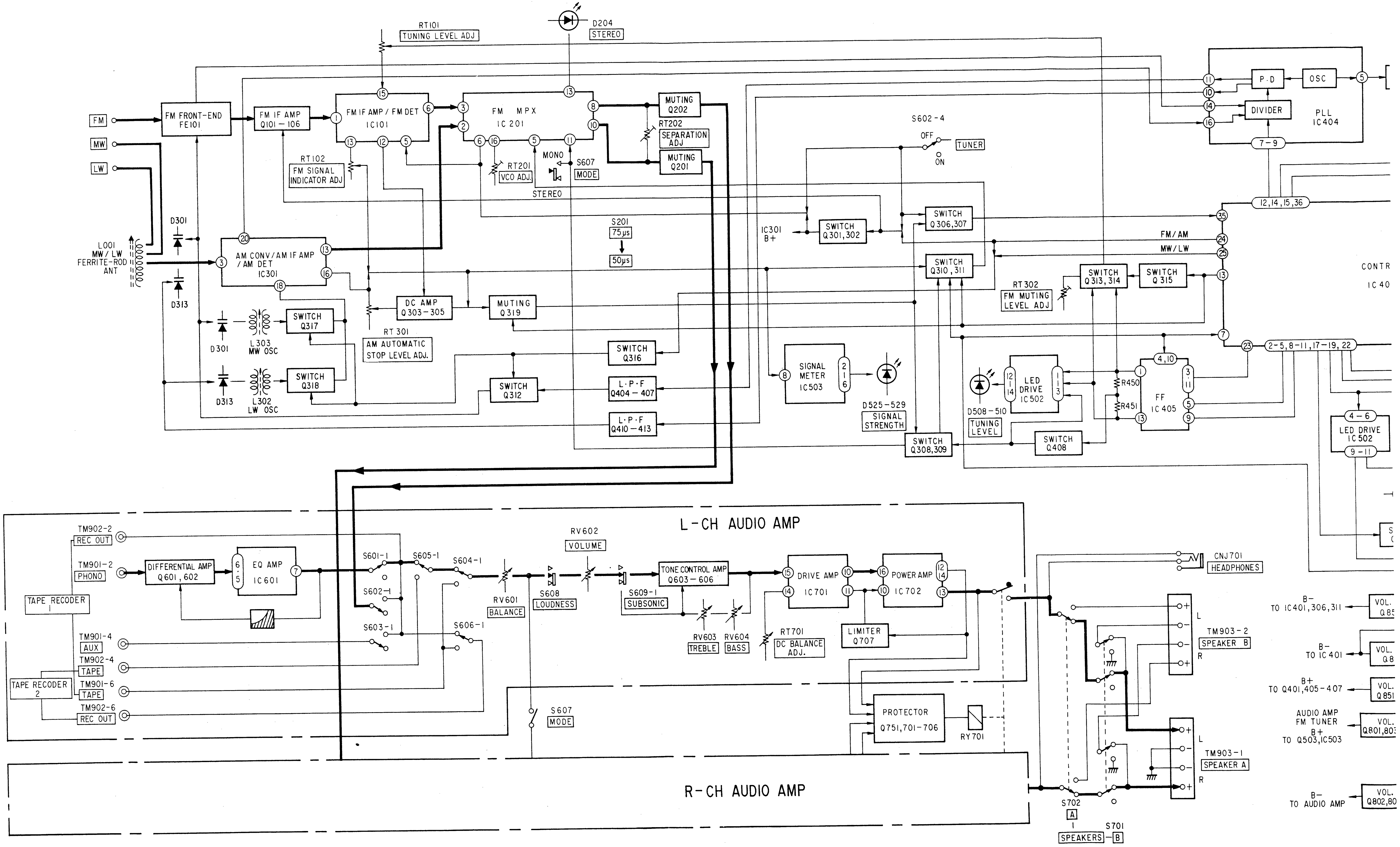
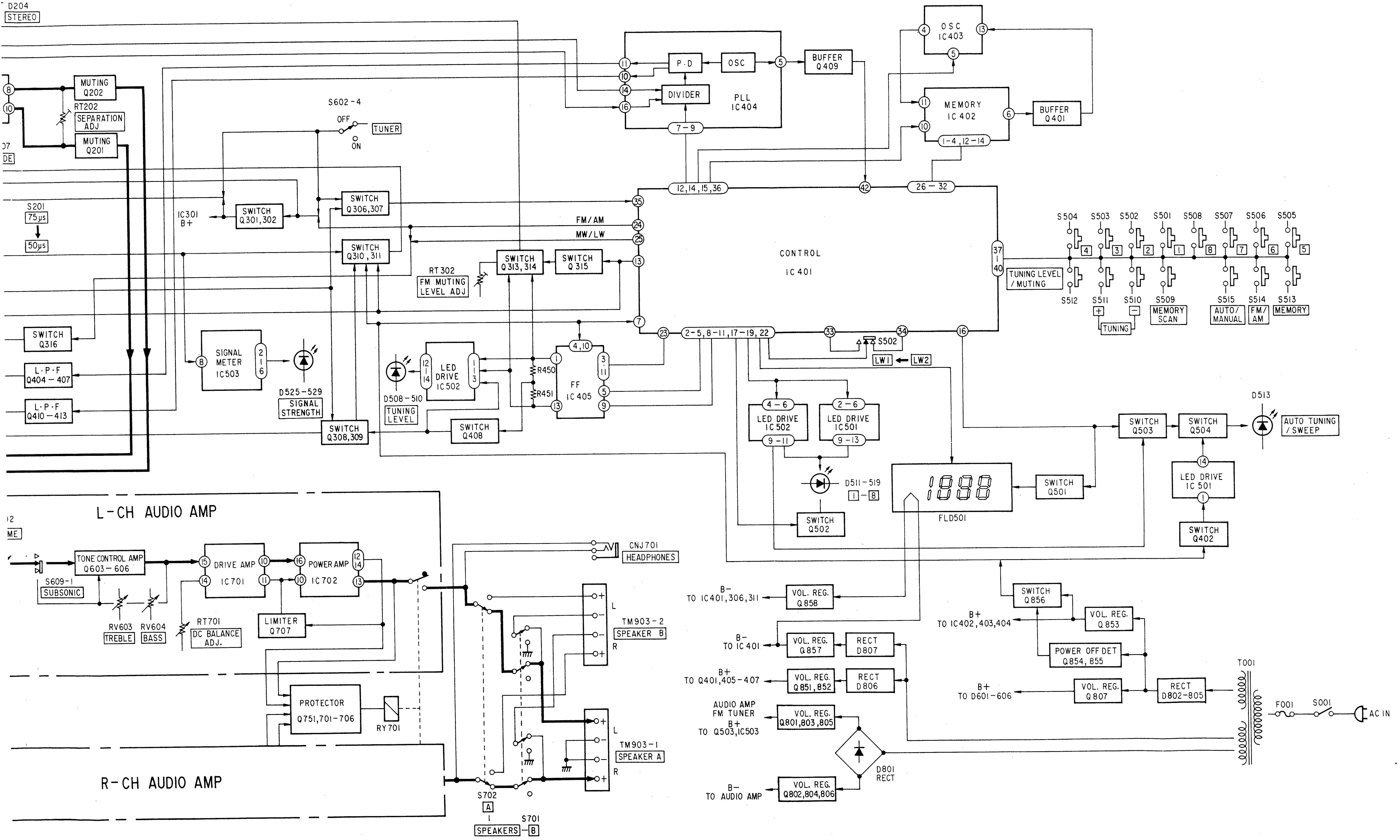

5
6
7
2
3
5
6
7
If this line is grounded, or touches B+ or B- bus . . . , the output stage of this IC will be destroyed.

Fig. I

SECTION 1
OUTLINE

1-1. BLOCK DIAGRAM

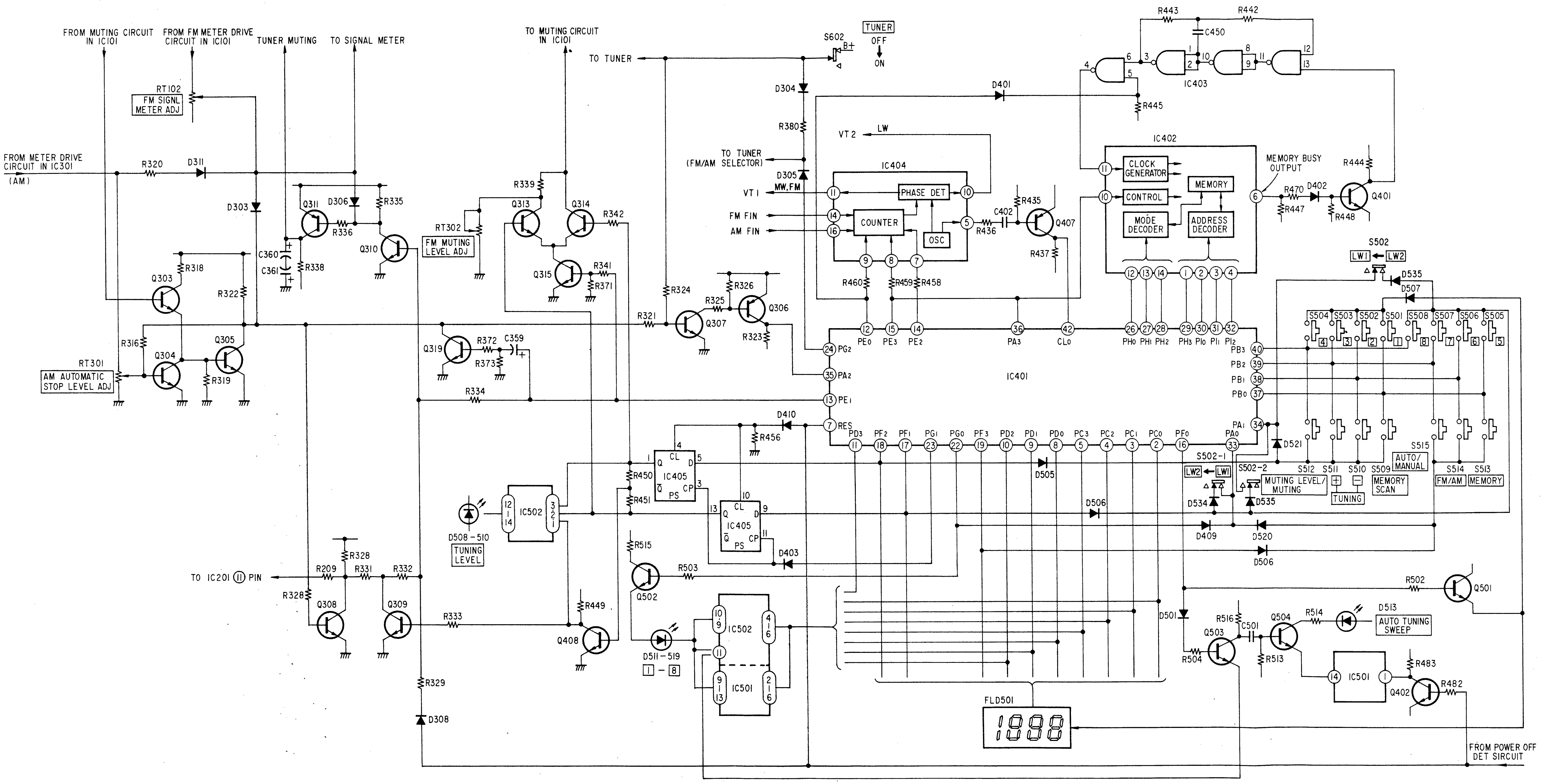

RT101
TUNING LEVEL ADJ
D204
STEREO
FM
MW
LW
FM FRONT-END
FE101
FM IF AMP
Q101 – 106
FM IF AMP / FM DET
IC101
FM MPX
IC 201
MUTING
Q202
RT202
SEPARATION ADJ
MUTING
Q201
RT102
FM SIGNAL INDICATOR ADJ
RT201
VCO ADJ
MONO
S607
MODE
STEREO
S602-4
OFF
ON
TUNER
P·D
OSC
DIVIDER
PLL
IC404
7–9
12,14,15,36
L001
MW/LW
FERRITE-ROD
ANT
D301
D313
AM CONV/AM IF AMP
/AM DET
IC301
S201
75µs
50µs
IC301
B+
SWITCH
Q301,302
SWITCH
Q306,307
SWITCH
Q310,311
FM/AM
MW/LW
CONTR
IC40
SWITCH
Q313,314
SWITCH
Q315
RT302
FM MUTING LEVEL ADJ
DC AMP
Q303 – 305
MUTING
Q319
RT 301
AM AUTOMATIC STOP LEVEL ADJ.
SWITCH
Q317
L303
MW OSC
SWITCH
Q318
L302
LW OSC
SWITCH
Q316
SWITCH
Q312
L·P·F
Q404 – 407
L·P·F
Q410 – 413
SIGNAL METER
IC503
D525 – 529
SIGNAL STRENGTH
LED DRIVE
IC502
D508 – 510
TUNING LEVEL
R450
R451
FF
IC405
4,10
2–5,8–11,17–19,22
LED DRIVE
IC502
4–6
9–11
SWITCH
Q308,309
SWITCH
Q408
L-CH AUDIO AMP
TM902-2
REC OUT
TM901-2
PHONO
DIFFERENTIAL AMP
Q601,602
EQ AMP
IC601
TAPE RECODER
1
S601-1
S605-1
S604-1
S602-1
S603-1
S606-1
RV601
BALANCE
RV602
VOLUME
S608
LOUDNESS
S609-1
SUBSONIC
TONE CONTROL AMP
Q603 – 606
RV603
TREBLE
RV604
BASS
DRIVE AMP
IC701
RT701
DC BALANCE ADJ.
POWER AMP
IC702
LIMITER
Q707
PROTECTOR
Q751,701 – 706
RY701
CNJ701
HEADPHONES
TM903-2
SPEAKER B
L
R
TM903-1
SPEAKER A
TM901-4
AUX
TM902-4
TAPE
TAPE RECODER
2
TM901-6
TAPE
TM902-6
REC OUT
S607
MODE
R-CH AUDIO AMP
S702
A
S701
SPEAKERS
B
B−
TO IC401,306,311
B−
TO IC 401
B+
TO Q401,405 – 407
AUDIO AMP
FM TUNER
B+
TO Q503,IC503
B−
TO AUDIO AMP
VOL.
Q85
VOL.
Q8
VOL.
Q851
VOL.
Q801,80
VOL.
Q802,80


D204
STEREO
MUTING Q202
RT202
SEPARATION ADJ
MUTING Q201
S201
75μs
50μs
S602-4
OFF
ON
TUNER
IC301 B+
SWITCH Q301,302
SWITCH Q306,307
SWITCH Q310,311
SWITCH Q316
L·P·F Q404-407
L·P·F Q410-413
SIGNAL METER IC503
D525-529
SIGNAL STRENGTH
SWITCH Q308,309
RT302
FM MUTING LEVEL ADJ
SWITCH Q313,314
SWITCH Q315
LED DRIVE IC502
D508-510
TUNING LEVEL
SWITCH Q408
R450
R451
FF IC405
FM/AM
MW/LW
P·D
OSC
DIVIDER
PLL IC404
BUFFER Q409
OSC IC403
MEMORY IC402
BUFFER Q401
CONTROL IC401
12,14,15,36
26-32
2-5,8-11,17-19,22
S502
LW1
LW2
S504 S503 S502 S501 S508 S507 S506 S505
S512 S511 S510 S509 S515 S514 S513
TUNING LEVEL / MUTING
TUNING
MEMORY SCAN
AUTO/ MANUAL
FM/ AM
MEMORY
LED DRIVE IC502
LED DRIVE IC501
D511-519
1-8
SWITCH Q502
FLD501
SWITCH Q501
SWITCH Q503
SWITCH Q504
D513
AUTO TUNING / SWEEP
LED DRIVE IC501
SWITCH Q402
L-CH AUDIO AMP
S609-1
SUBSONIC
TONE CONTROL AMP Q603-606
RV603
TREBLE
RV604
BASS
DRIVE AMP IC701
POWER AMP IC702
RT701
DC BALANCE ADJ.
LIMITER Q707
PROTECTOR Q751,701-706
RY701
CNJ701
HEADPHONES
TM903-2
SPEAKER B
TM903-1
SPEAKER A
L
R
S702
A
S701
SPEAKERS
B
R-CH AUDIO AMP
B- TO IC401,306,311
VOL. REG. Q858
B- TO IC401
VOL. REG. Q857
RECT D807
B+ TO Q401,405-407
VOL. REG. Q851,852
RECT D806
AUDIO AMP FM TUNER B+ TO Q503,IC503
VOL. REG. Q801,803,805
D801 RECT
B- TO AUDIO AMP
VOL. REG. Q802,804,806
SWITCH Q856
B+ TO IC402,403,404
VOL. REG. Q853
POWER OFF DET Q854,855
B+ TO D601-606
VOL. REG. Q807
RECT D802-805
T001
F001
S001
AC IN

1-2. CIRCUIT DESCRIPTION

(1) Circuit Diagram around µPD553C

(2)


FROM MUTING CIRCUIT IN IC101
FROM FM METER DRIVE CIRCUIT IN IC101
TUNER MUTING
TO SIGNAL METER
TO MUTING CIRCUIT IN IC101
TO TUNER
S602
B+
TUNER
OFF
ON
RT102
FM SIGNL METER ADJ
FROM METER DRIVE CIRCUIT IN IC301 (AM)
R320
D311
D303
D304
R380
VT2
LW
TO TUNER (FM/AM SELECTOR)
D305
MW, FM
VT1
FM FIN
AM FIN
IC404
PHASE DET
COUNTER
OSC
D401
R443
R442
C450
IC403
R445
IC402
CLOCK GENERATOR
MEMORY
CONTROL
MODE DECODER
ADDRESS DECODER
MEMORY BUSY OUTPUT
R470
D402
R444
Q401
R447
R448
S502
LW1
LW2
D535
D507
C402
R435
Q407
R436
R437
R460
R459
R458
Q311
D306
R335
R336
Q310
C360
C361
R338
R339
Q313
Q314
R342
RT302
FM MUTING LEVEL ADJ
Q315
R341
R371
R324
R326
R325
Q306
Q307
R321
R323
Q303
R318
R322
R316
Q304
Q305
R319
RT301
AM AUTOMATIC STOP LEVEL ADJ
Q319
R372
C359
R373
R334
IC401
PE0
PE3
PE2
PA3
CL0
PH0
PH1
PH2
PH3
PI0
PI1
PI2
PG2
PA2
PE1
RES
PB3
PB2
PB1
PB0
PA1
PA0
PD3
PF2
PF1
PG1
PG0
PF3
PD2
PD1
PD0
PC3
PC2
PC1
PC0
PF0
S504
S503
S502
S501
S508
S507
S506
S505
D410
R456
IC405
CL
Q
D
CP
PS
R450
R451
D505
D506
D409
D520
D403
D521
S502-1
S502-2
MUTING LEVEL/ MUTING
D534
D535
S512
S511
S510
S509
TUNING
MEMORY SCAN
S515
AUTO/ MANUAL
S514
S513
FM/AM
MEMORY
D508-510
TUNING LEVEL
IC502
R515
Q502
R503
R328
R209
R331
R332
TO IC201 ⑪ PIN
Q308
Q309
R333
R449
Q408
D511-519
1 - 8
IC501
R329
D308
R502
Q501
D501
R516
C501
Q504
R514
D513
AUTO TUNING SWEEP
Q503
R504
R513
R483
R482
Q402
FLD501
1888
FROM POWER OFF DET SIRCUIT

PORT A

PORT B

PORT C

PORT D

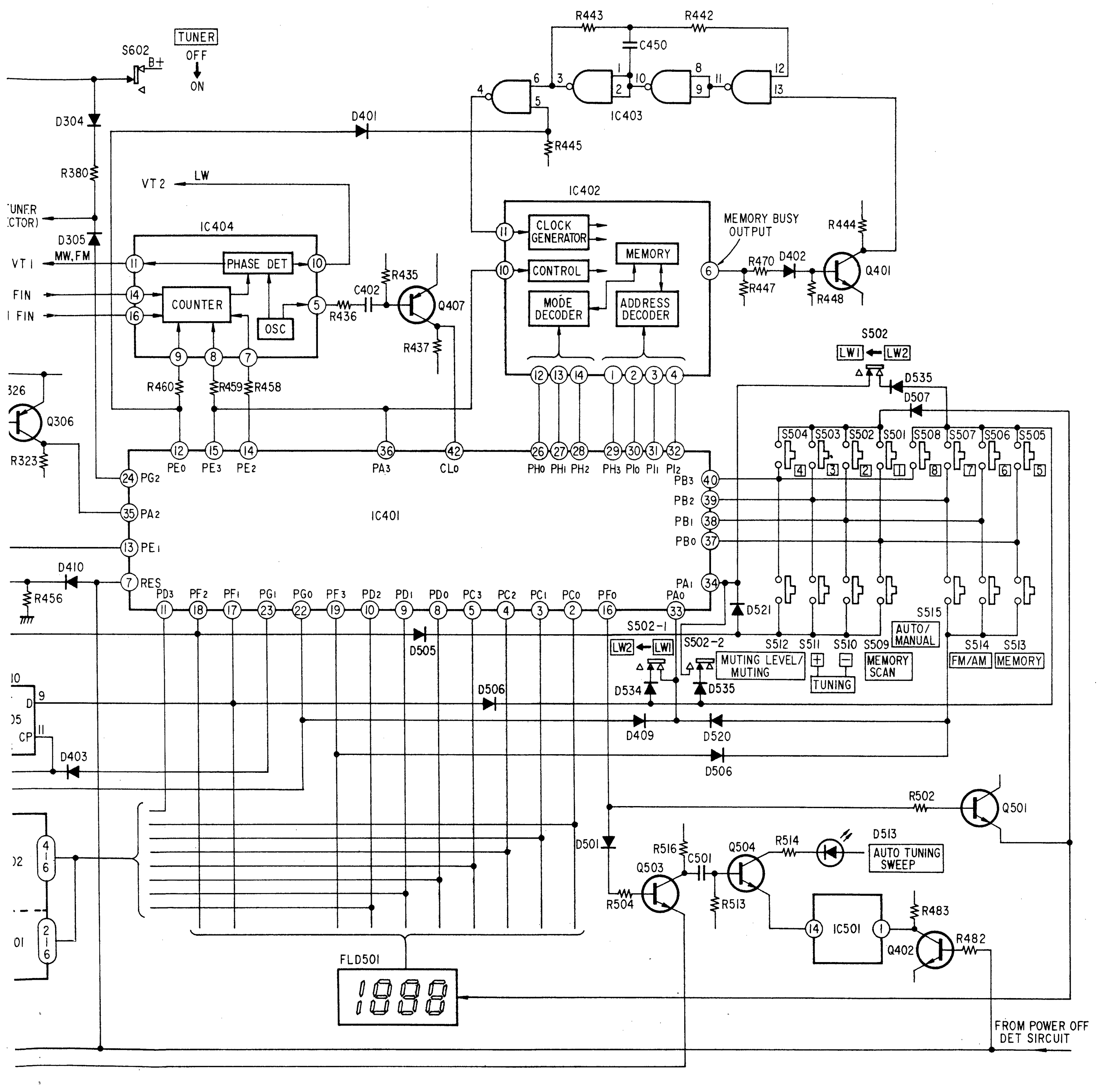
PORT F

PORT G

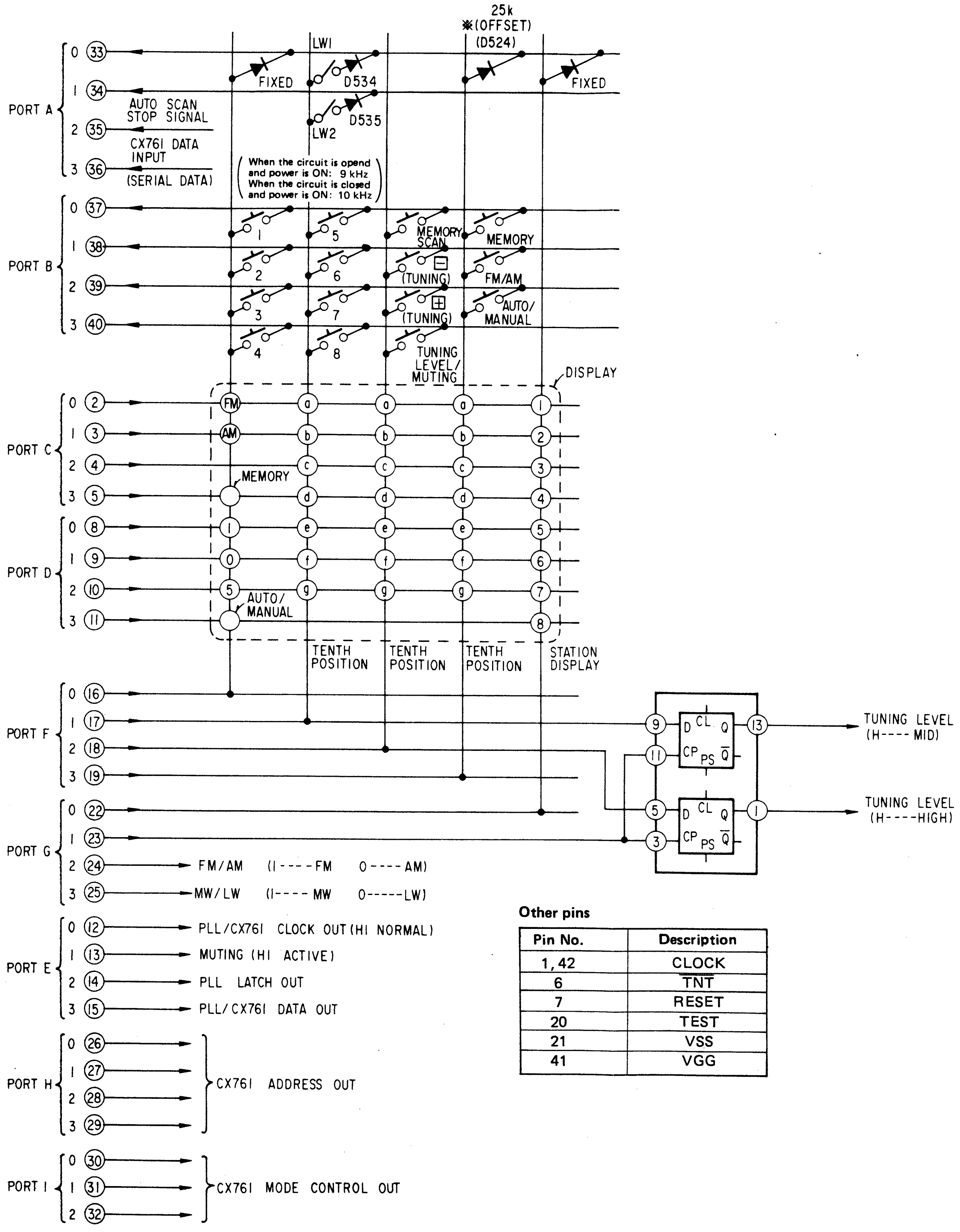
PORT E

PORT H

PORT I


S602
TUNER
OFF
ON
B+
D304
R380
VT 2
LW
D305
MW.FM
VT 1
FIN
IC404
PHASE DET
COUNTER
OSC
R443
R442
C450
IC403
D401
R445
IC402
CLOCK GENERATOR
CONTROL
MEMORY
MODE DECODER
ADDRESS DECODER
MEMORY BUSY OUTPUT
R444
R470
D402
Q401
R447
R448
C402
R435
Q407
R436
R437
R460
R459
R458
Q306
R323
IC401
PE0 PE3 PE2 PA3 CL0 PH0 PH1 PH2 PH3 PI0 PI1 PI2
PG2 PA2 PE1 RES
PB3 PB2 PB1 PB0 PA1 PA0
PD3 PF2 PF1 PG1 PG0 PF3 PD2 PD1 PD0 PC3 PC2 PC1 PC0 PF0
S502
LW1
LW2
D535
D507
S504 S503 S502 S501 S508 S507 S506 S505
D410
R456
D521
S515
AUTO/MANUAL
S502-1
S502-2
S512 S511 S510 S509
MUTING LEVEL/MUTING
TUNING
MEMORY SCAN
S514 S513
FM/AM
MEMORY
D505
D506
D534
D535
D409
D520
D506
D403
R502
Q501
D501
R516
C501
Q504
R514
D513
AUTO TUNING SWEEP
Q503
R504
R513
IC501
R483
Q402
R482
FLD501
1888
FROM POWER OFF DET SIRCUIT

(2) μPD553C Port Map


25k
※(OFFSET)
(D524)
PORT A
LW1
FIXED
D534
D535
LW2
FIXED
AUTO SCAN STOP SIGNAL
CX761 DATA INPUT (SERIAL DATA)
When the circuit is opend and power is ON: 9 kHz
When the circuit is closed and power is ON: 10 kHz
PORT B
MEMORY SCAN
MEMORY
⊟ (TUNING)
FM/AM
⊞ (TUNING)
AUTO/MANUAL
TUNING LEVEL/MUTING
DISPLAY
PORT C
PORT D
FM
AM
MEMORY
AUTO/MANUAL
TENTH POSITION
TENTH POSITION
TENTH POSITION
STATION DISPLAY
PORT F
PORT G
D CL Q
CP PS Q̄
TUNING LEVEL (H---- MID)
TUNING LEVEL (H----HIGH)
FM/AM (1----FM 0----AM)
MW/LW (1---- MW 0-----LW)
PORT E
PLL/CX761 CLOCK OUT (HI NORMAL)
MUTING (HI ACTIVE)
PLL LATCH OUT
PLL/CX761 DATA OUT
PORT H
CX761 ADDRESS OUT
PORT I
CX761 MODE CONTROL OUT

Other pins

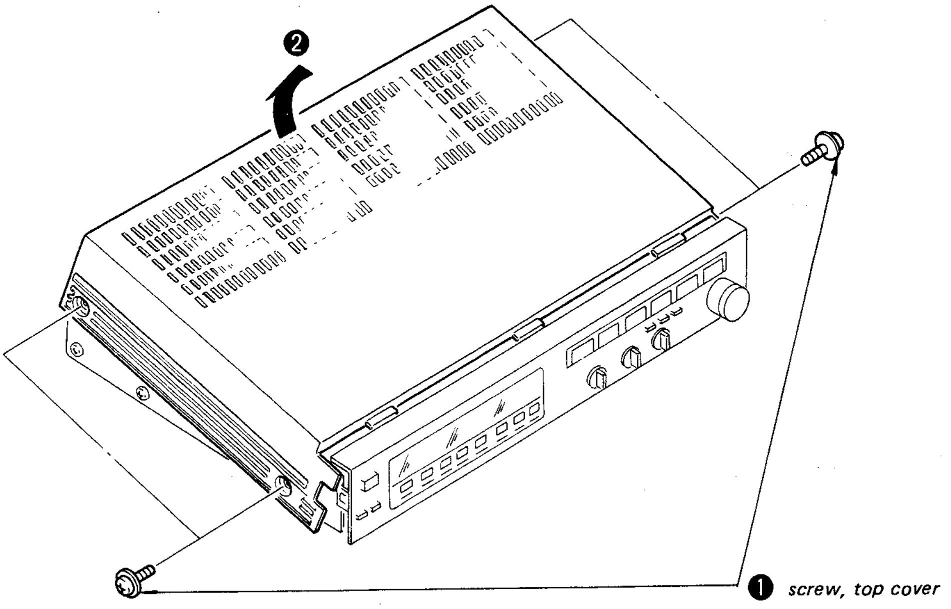
Pin No.	Description
1, 42	CLOCK
6	TNT
7	RESET
20	TEST
21	VSS
41	VGG

SECTION 2

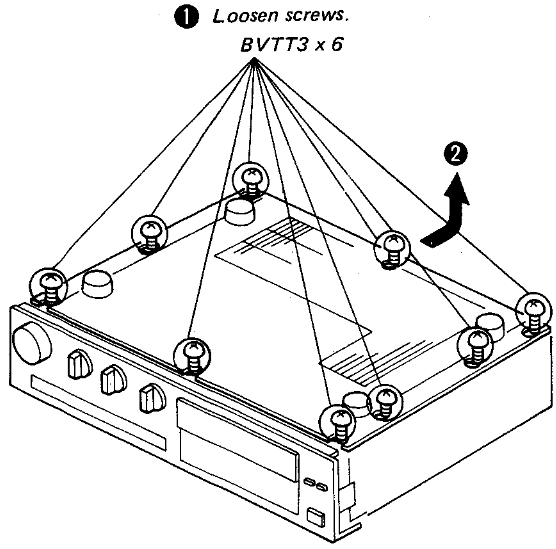
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

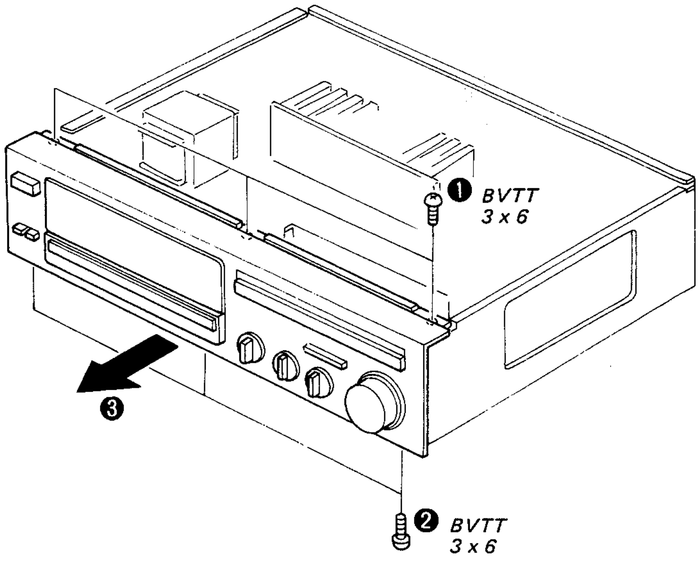
Top Cover


❷
❶ screw, top cover

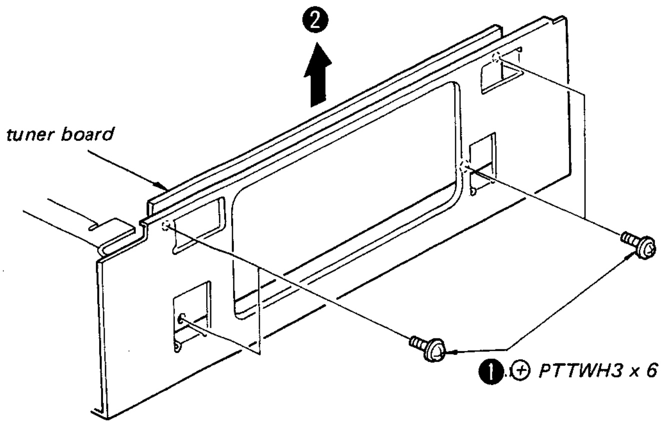
Bottom Plate


❶ Loosen screws.
BVTT3 x 6
❷

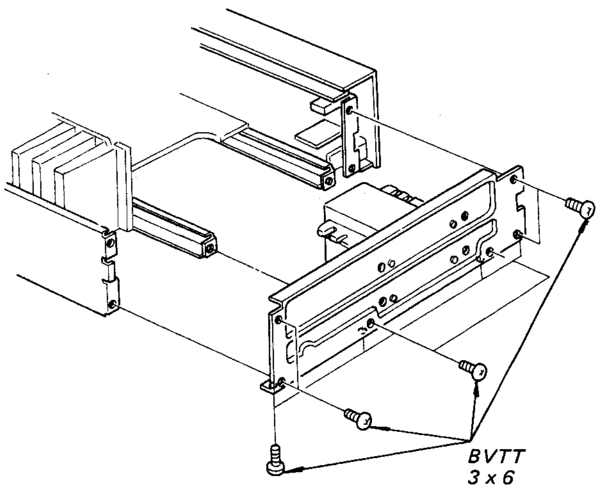
Front Panel


❶ BVTT
3 x 6
❷ BVTT
3 x 6
❸

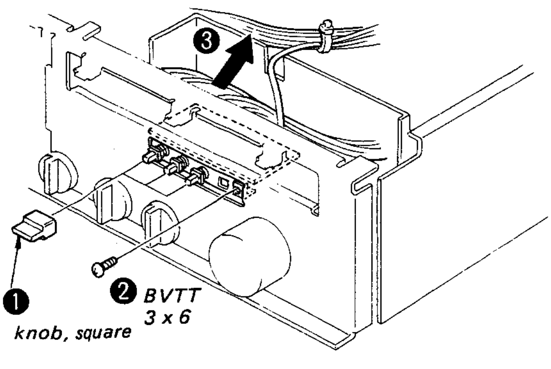
Tuner Board


❷
tuner board
❶ ⊕ PTTWH3 x 6

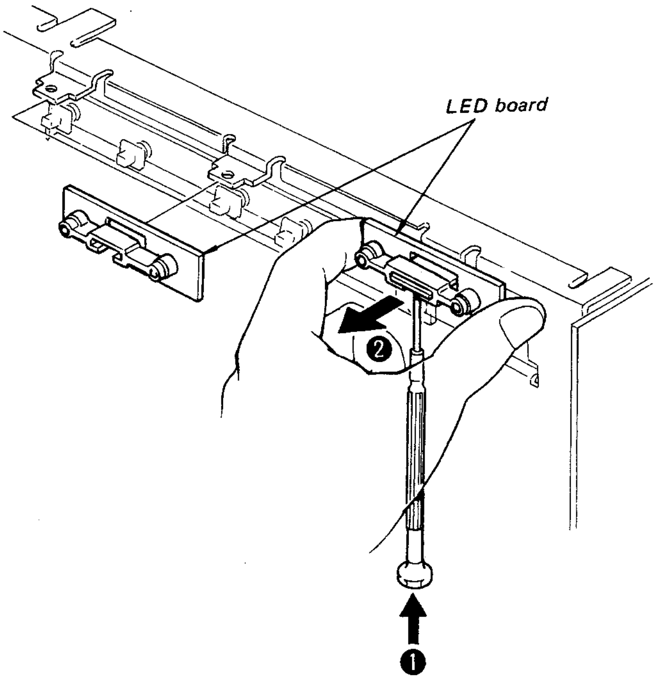
Side Plate (R)



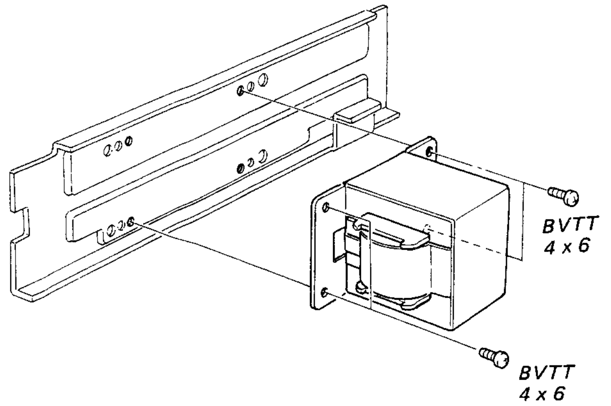
SUB SW Board


❸
❶
knob, square
❷ BVTT
3 x 6

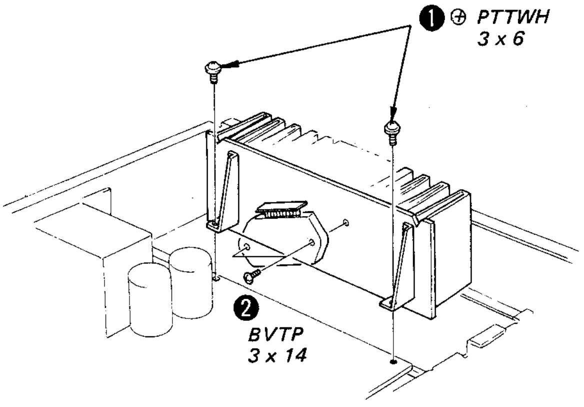
LED Board


LED board
❷
❶

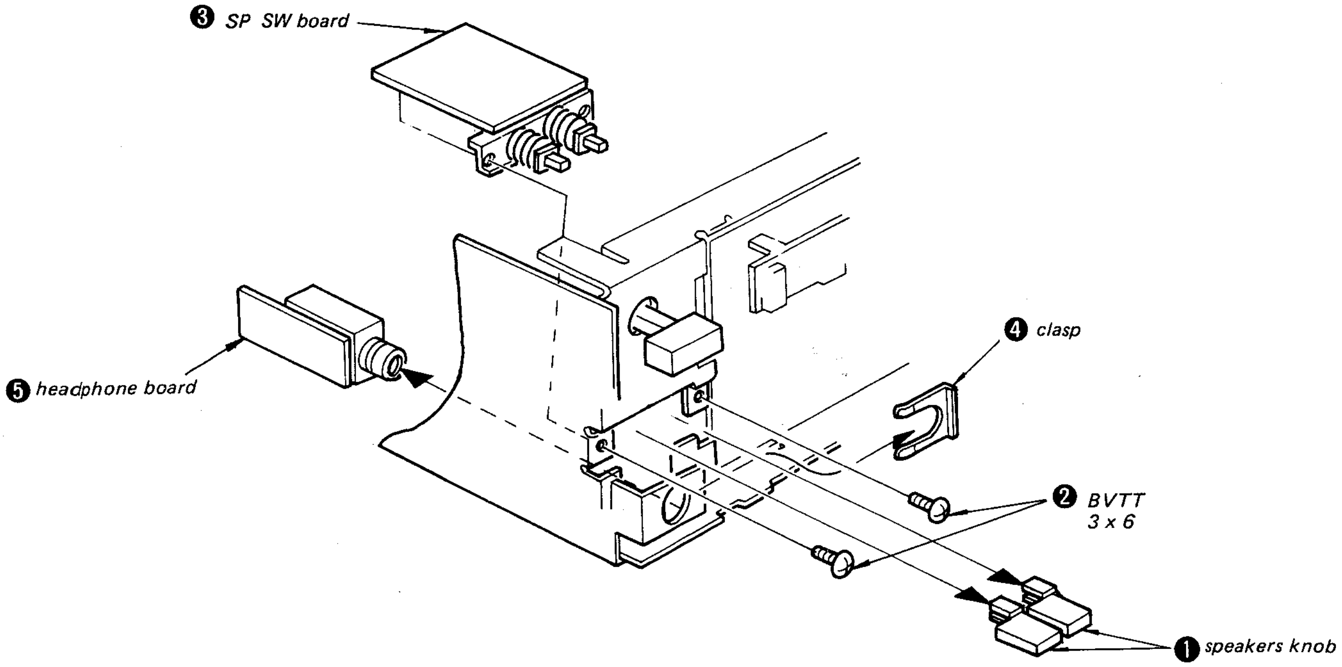
Power Transformer


BVTT
4 x 6
BVTT
4 x 6

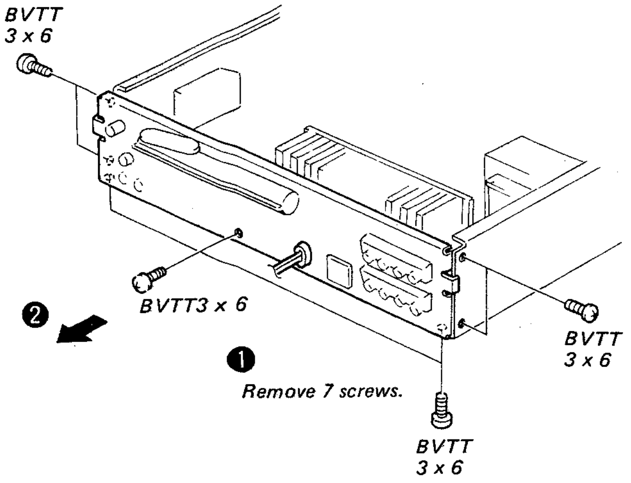
Heat Sink


❶ ⊕ PTTWH
3 x 6
❷
BVTP
3 x 14

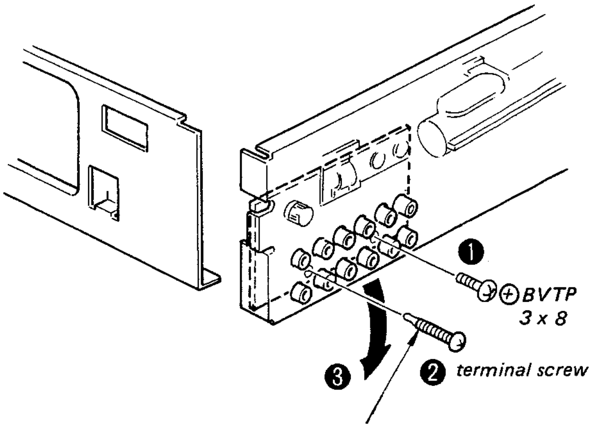
SP SW Board, Headphone Board


❸ SP SW board
❺ headphone board
❹ clasp
❷ BVTT
3 x 6
❶ speakers knob

Jack Plate

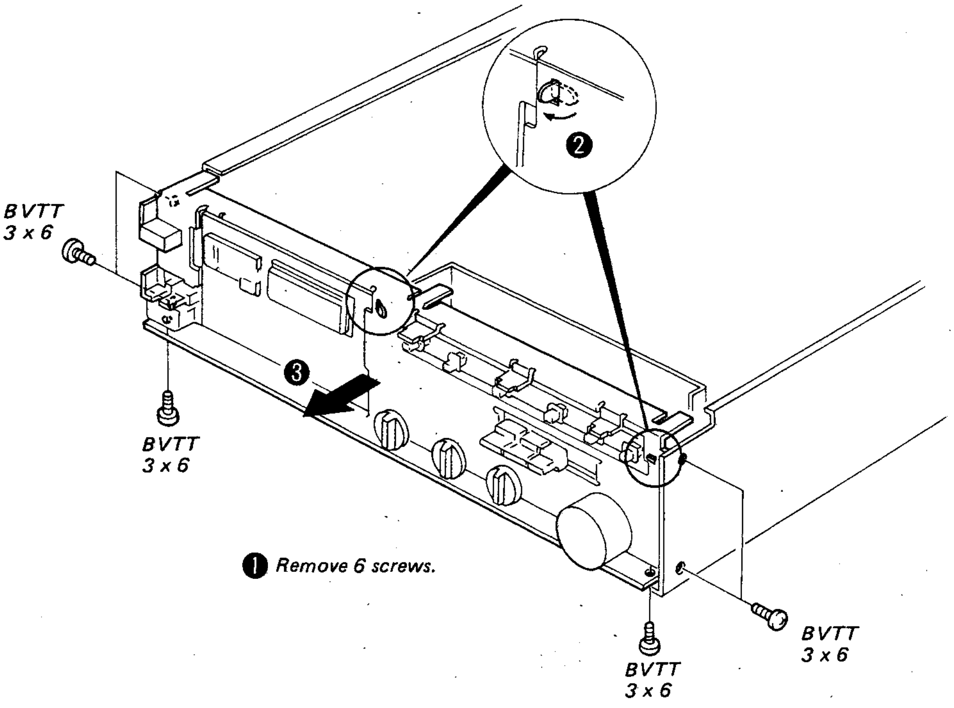

BVTT
3 x 6
BVTT3 x 6
❷
❶
Remove 7 screws.
BVTT
3 x 6
BVTT
3 x 6

Pin Jack Board

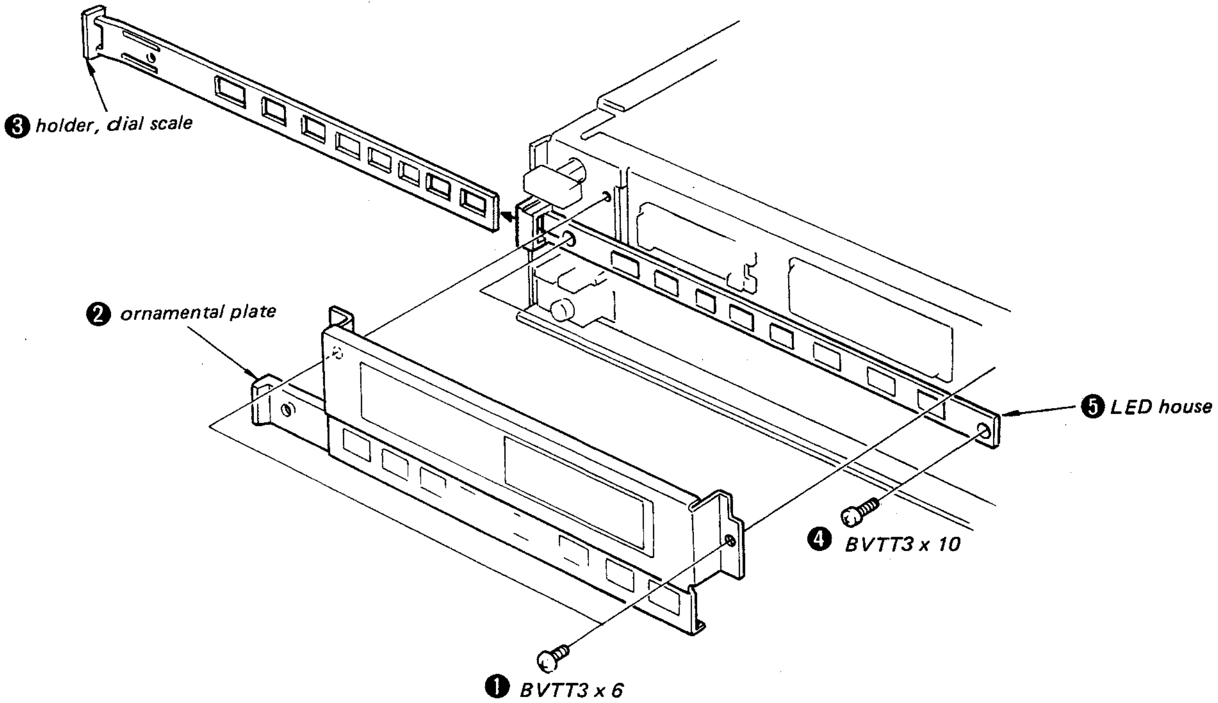

❶
BVTP
3 x 8
❸
❷ terminal screw

This portion is soldered on the patterns of the board, but this screw can be removed by turning it hard with a screw-driver. Solder here again when assembling.

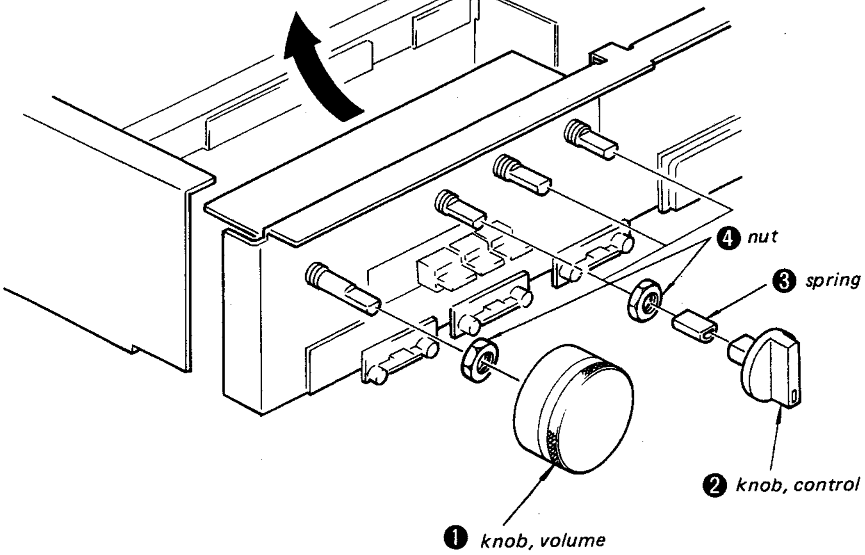
SUB Panel


❷
BVTT
3 x 6
❸
BVTT
3 x 6
❶ Remove 6 screws.
BVTT
3 x 6
BVTT
3 x 6

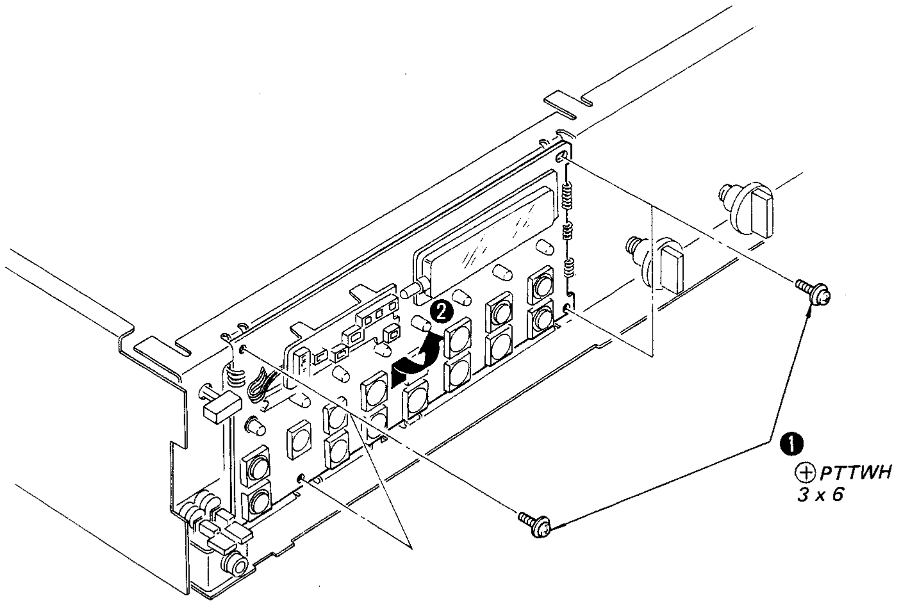
Ornamental Plate, LED House


③ holder, dial scale
② ornamental plate
⑤ LED house
④ BVTT3 x 10
① BVTT3 x 6

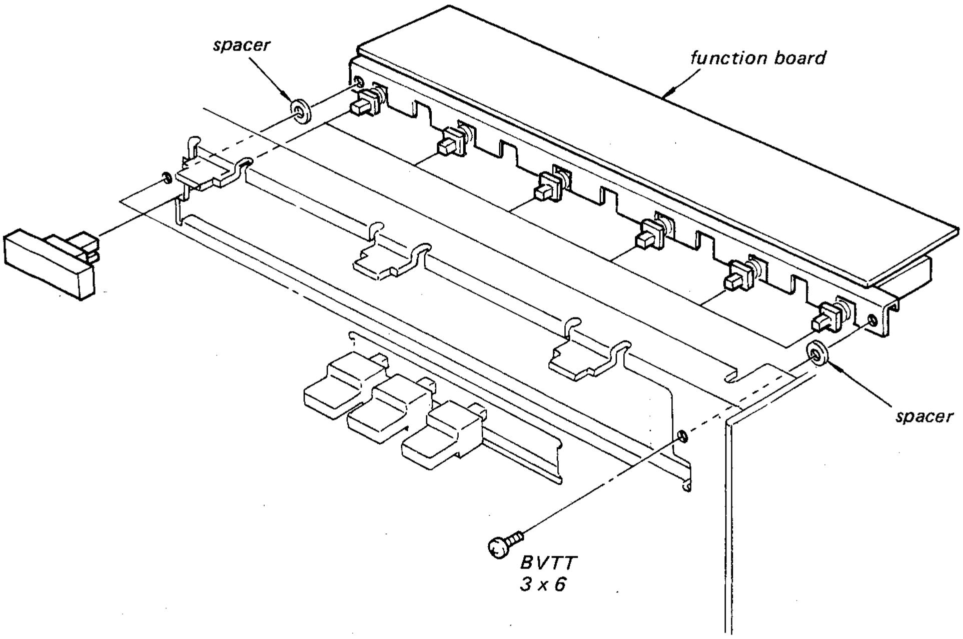
Tone Control Board


④ nut
③ spring
② knob, control
① knob, volume

Display Board

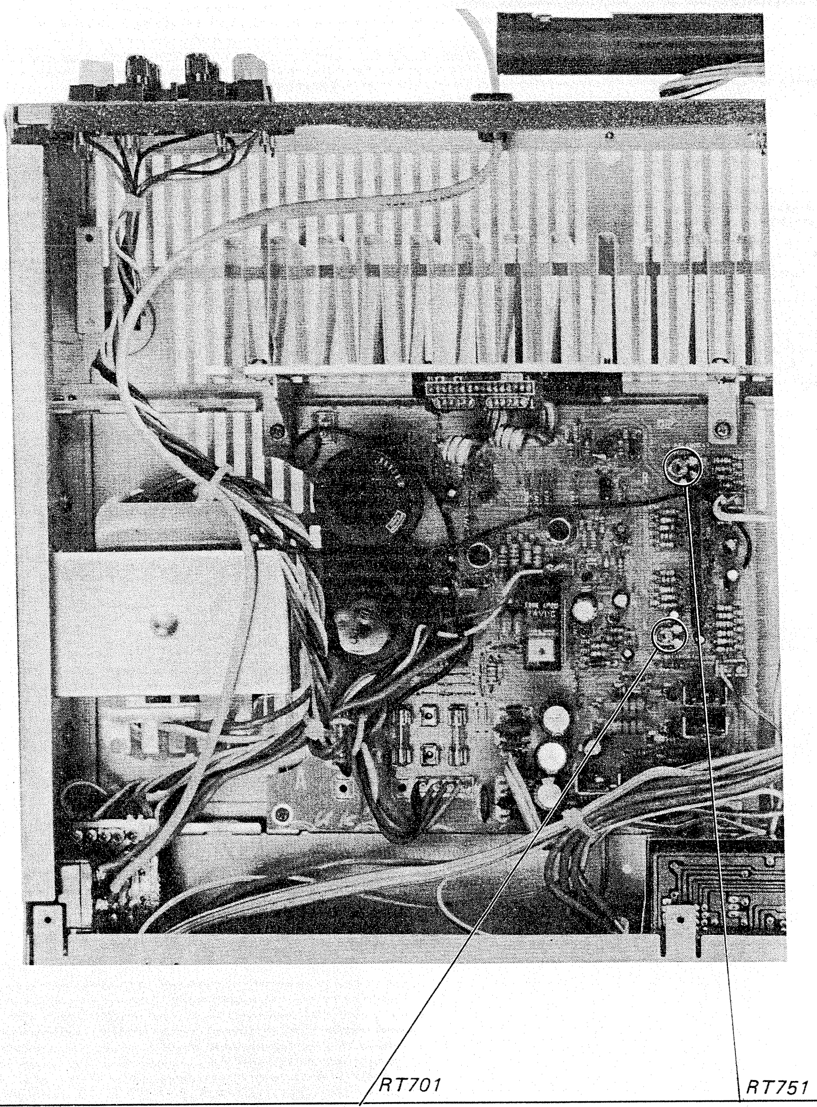

❷
❶
⊕PTTWH
3 x 6

Function Board

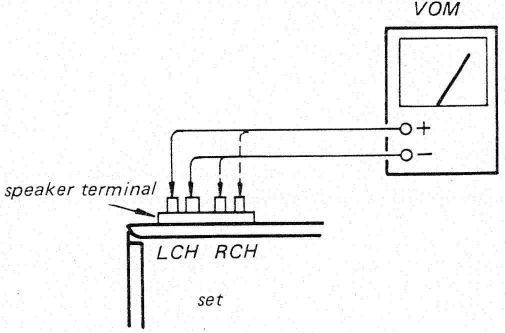

spacer
function board
spacer
BVTT
3 x 6

AUDIO SECTION

SECTION 3
ADJUSTMENTS


RT701
RT751

DC Balance Adjustment


VOM
+
−
speaker terminal
LCH RCH
set

Setting:

VOLUME control: minimum

Procedure:

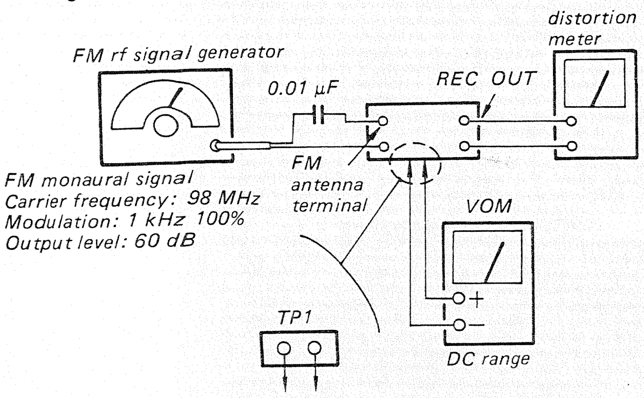
Adjust RT701 (L-CH) and RT751 (R-CH) for 0 V dc reading (150 mV or less) at each SP OUT.

FM SECTION

- **The FM front-end is carefully adjusted at the factory and is supplied as one whole block for replacement.**

FM Discriminator Adjustment

Setting:


distortion meter
FM rf signal generator
0.01 µF
REC OUT
FM antenna terminal
VOM
TP1
DC range
+
–

FM monaural signal
Carrier frequency: 98 MHz
Modulation: 1 kHz 100%
Output level: 60 dB

NULL Adjustment

Procedure:

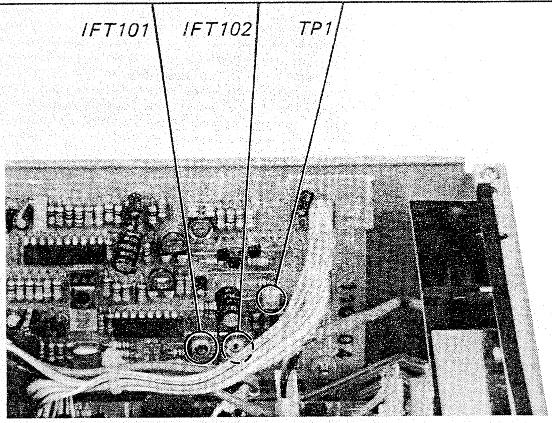
Adjust IFT101 (primary side), BLK for 0 V dc reading on the VOM.

Distortion Adjustment

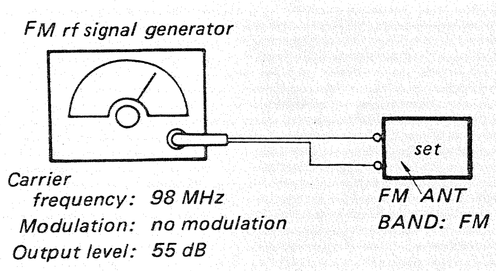
Procedure:

Adjust IFT102 (secondary side, WHT) for the minimum distortion.

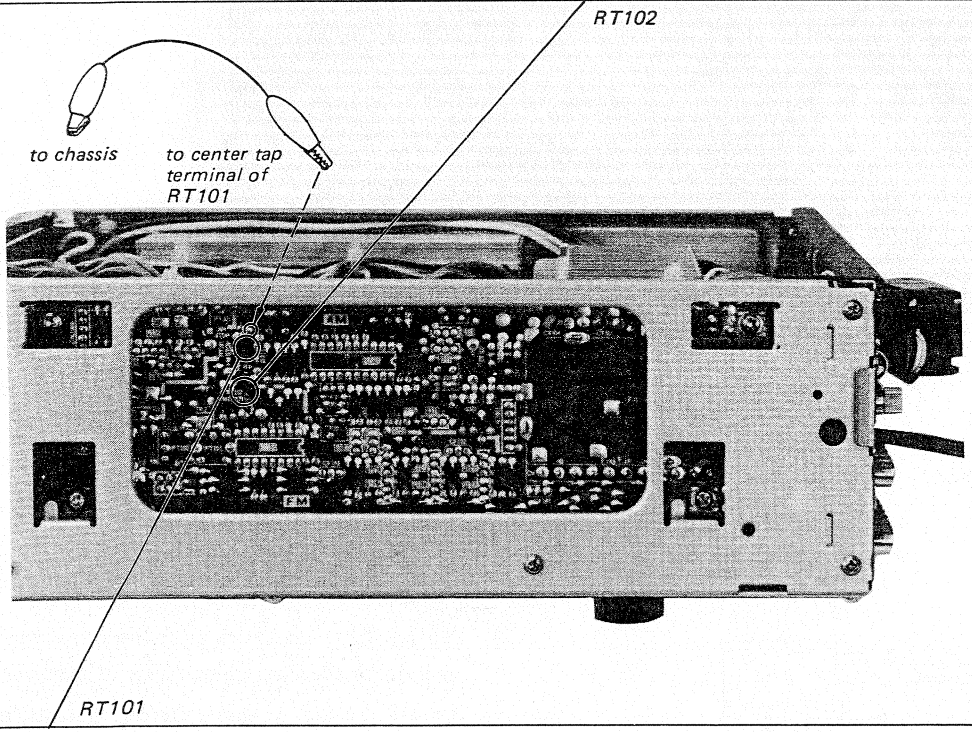
Note: Repeat the secondary-side and primary-side adjustments several times.


IFT101
IFT102
TP1

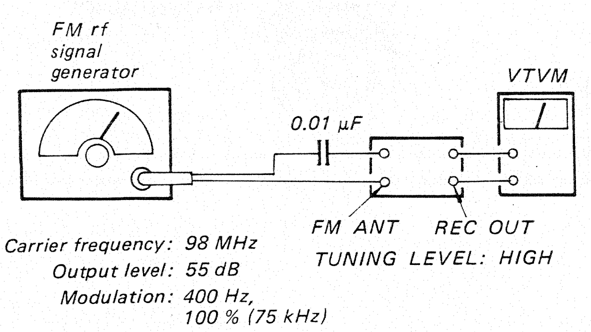
Signal Indicator Adjustment


FM rf signal generator
set
FM ANT
BAND: FM
Carrier frequency: 98 MHz
Modulation: no modulation
Output level: 55 dB

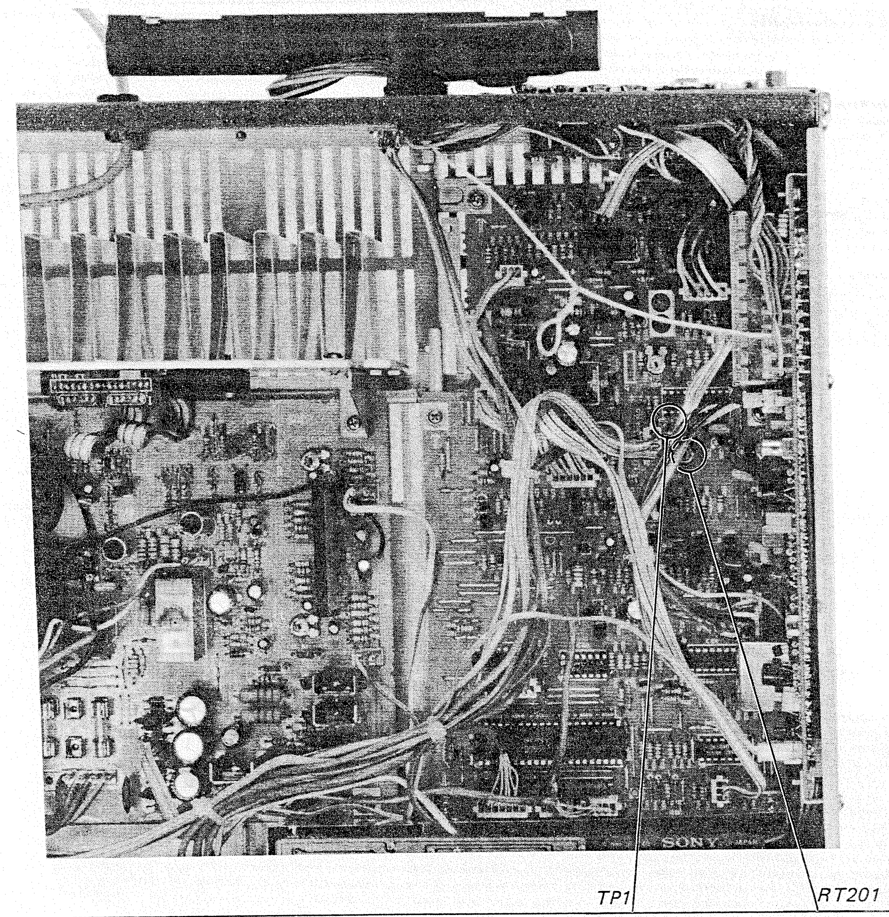
1. Tune the unit to the 98 MHz signal.
2. Adjust RT102 so that the SIGNAL STRENGTH indicator illuminates fully.


RT102
to chassis
to center tap terminal of RT101
AM
FM
RT101

Tuning Level Adjustment


FM rf signal generator
0.01 μF
VTVM
FM ANT
REC OUT
TUNING LEVEL: HIGH
Carrier frequency: 98 MHz
Output level: 55 dB
Modulation: 400 Hz, 100 % (75 kHz)

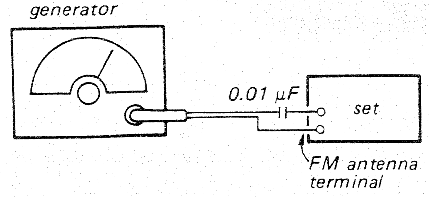
1. Tune the unit to the 98 MHz signal.
2. Turn RT101 till VTVM indication suddenly changes, where 98 MHz signal can be received.



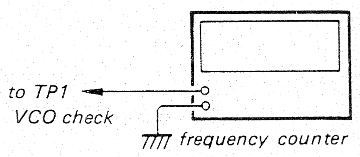
VCO Adjustment

A) Regular Method

Procedure:


FM rf signal generator
0.01 μF
set
FM antenna terminal

Carrier frequency: *98 MHz*
Modulation: *no modulation*
Output level: *1 mV (60 dB)*

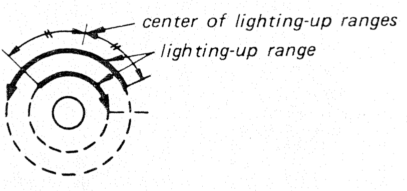

to TP1
VCO check
frequency counter

1. Tune the set to 98 MHz.
2. Adjust RT201 for 19 kHz ±25 Hz on the counter.

B) Simple Method

Procedure:

1. Tune the set to the FM stereo broadcasting signal.
2. Turn RT201 clockwise or counterclockwise and memorize the lighting-up range of stereo lamp.
3. Secure RT201 at the center of the lighting-up range of both turns as shown below.


center of lighting-up ranges
lighting-up range

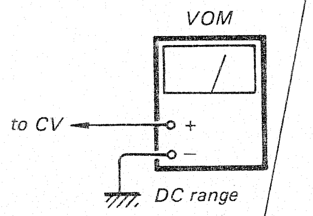
AM SECTION

- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

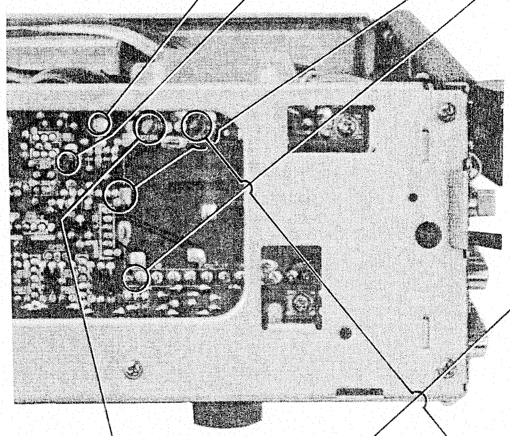
MW VC ADJUSTMENT		DIAL INDICATION
Adjust for specified reading on VOM.		
L303	1.5 V	530 kHz
CT302	22 V	1610 kHz

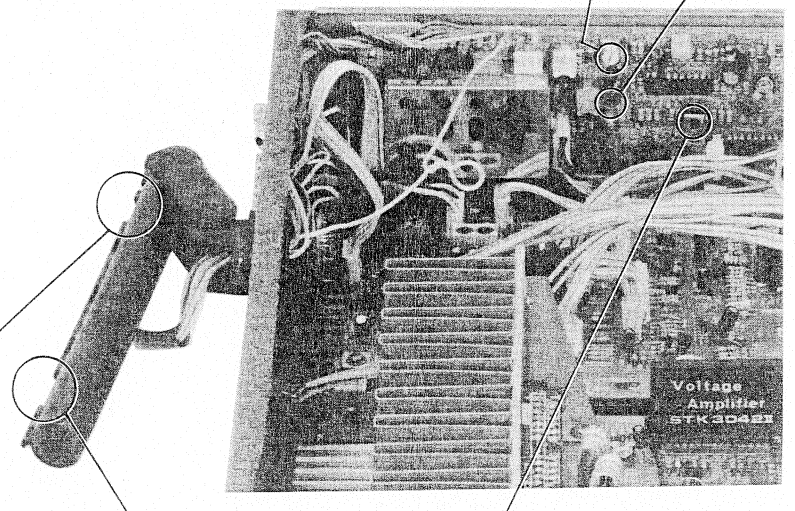
* LW1 VC ADJUSTMENT		DIAL INDICATION
Adjust for specified reading on VOM.		
L305	2.3 V	155 kHz
CT303	18.5 V	344 kHz

* Adjustment should be made at LW1.


VOM
to CV
+
−
DC range

Adjustment should be done from the component side.



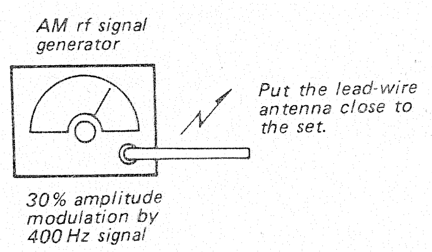

CV (MW)
Voltage Amplifier

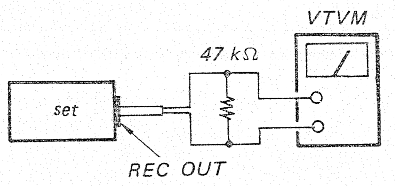
CT304	L001-2
308 kHz	173 kHz
Adjust for a maximum reading on VTVM.	
LW1 TRACKING ADJUSTMENT	

* Adjustment should be made at LW1.

CT301	L001-1
1400 kHz	600 kHz
Adjust for a maximum reading on VTVM.	
MW TRACKING ADJUSTMENT	

IFT301
450 kHz
Adjust for a maximum reading on VOM.
IF ALIGNMENT


AM rf signal generator
Put the lead-wire antenna close to the set.
30% amplitude modulation by 400 Hz signal

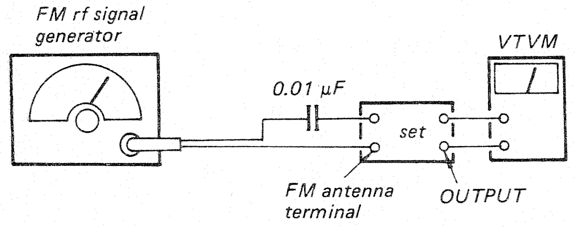

VTVM
47 kΩ
set
REC OUT

FM Muting Level Adjustment

Setting:

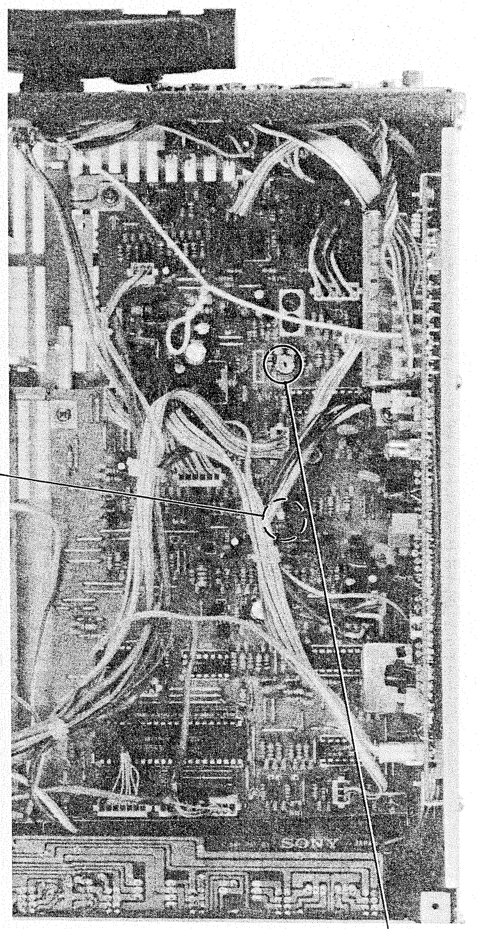
MUTING switch: ON

Procedure:


FM rf signal generator
VTVM
0.01 μF
set
FM antenna terminal
OUTPUT

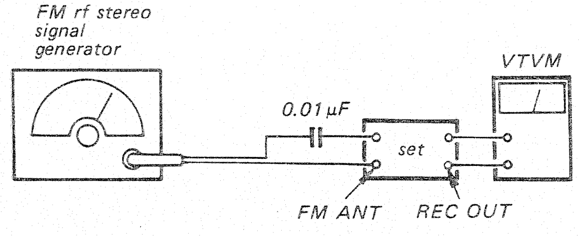
Carrier frequency: 98 MHz
Modulation: 400 Hz, 40 kHz deviation (100 %)
Output level: 5.6 μV (20 dB)

1. Tune the set to 98 MHz by pressing the MANUAL TUNING switches.
2. Adjust RT302 so that VTVM reading suddenly changes.


RT302
RT202
SONY

FM Stereo Separation Adjustment

Procedure:

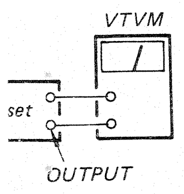

FM rf stereo signal generator
VTVM
0.01 μF
set
FM ANT
REC OUT

Carrier frequency: 98 MHz
Output level: 1 mV (60 dB)
Mode: Stereo
Modulation:
Audio (400 Hz), sub-channel: 16.25 kHz deviation (40.625 %)
Pilot (19 kHz): 7.5 kHz deviation (18.75 %)

FM stereo signal generator output channel	VTVM connection	VTVM reading (dB)
L-CH	L-CH	Ⓐ
R-CH	L-CH	Ⓑ Adjust RT202 for minimum reading.
R-CH	R-CH	Ⓒ
L-CH	R-CH	Ⓓ Adjust RT202 for minimum reading.

L-CH Stereo separation: Ⓐ − Ⓑ
R-CH Stereo separation: Ⓒ − Ⓓ

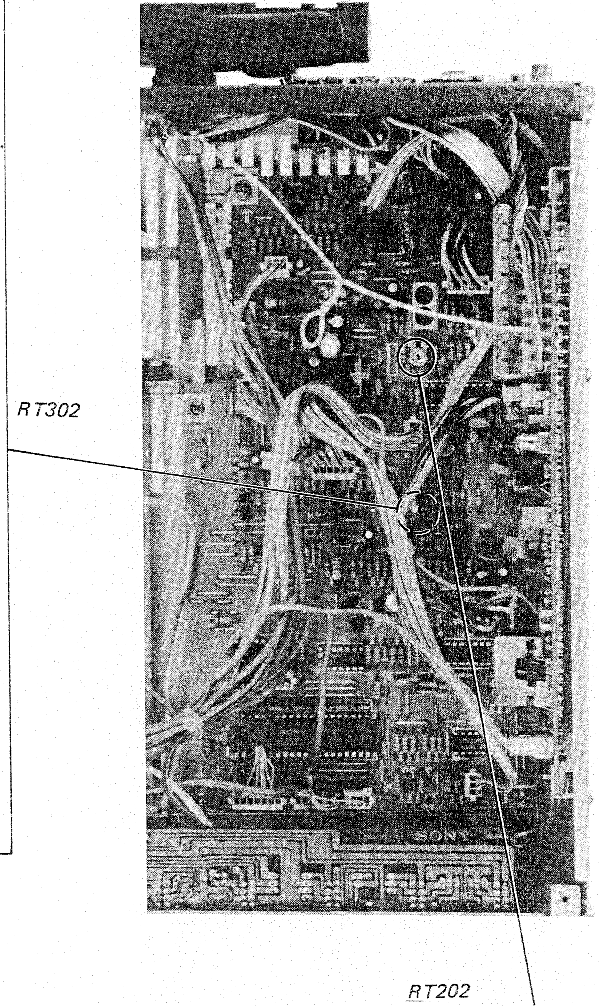
The separations of both channels should be equal.

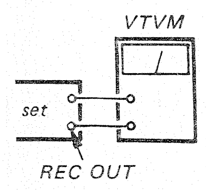

VTVM
set
OUTPUT

iation (100 %)

/ pressing the

ading suddenly


RT302
RT202

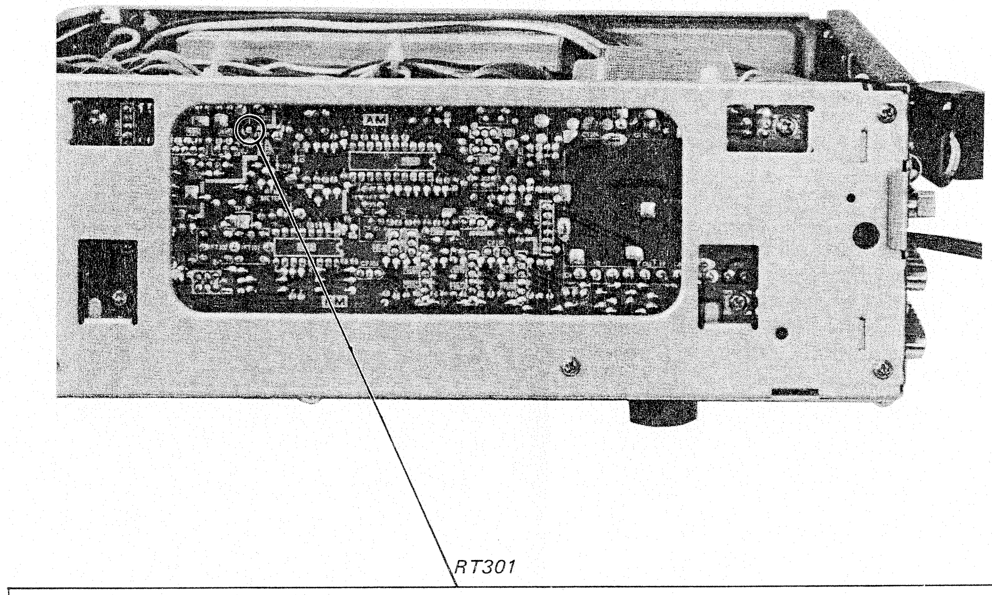

VTVM
set
REC OUT

Hz deviation (40.625 %)
.75 %)

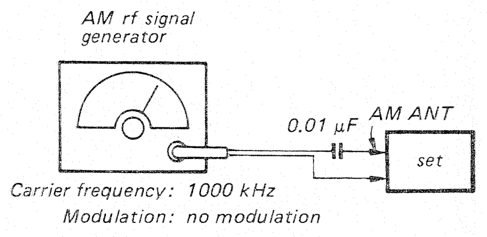
FM stereo signal generator output channel	VTVM connection	VTVM reading (dB)
L-CH	L-CH	Ⓐ
R-CH	L-CH	Ⓑ Adjust RT202 for minimum reading.
R-CH	R-CH	Ⓒ
L-CH	R-CH	Ⓓ Adjust RT202 for minimum reading.

L-CH Stereo separation: Ⓐ − Ⓑ
R-CH Stereo separation: Ⓒ − Ⓓ

The separations of both channels should be equal.



Automatic Stop Level Adjustment


AM rf signal generator
0.01 μF
AM ANT
set
Carrier frequency: 1000 kHz
Modulation: no modulation

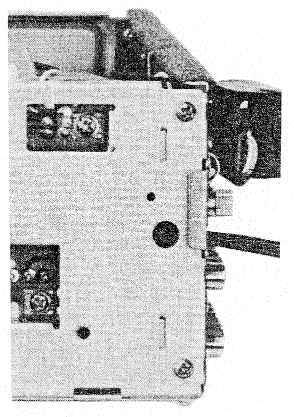
Setting:

RT301: mechanical mid

Procedure:

1. Tune the unit to the 1,000 kHz signal.
2. Adjust output level of signal generator so that the second segment of SIGNAL LED lights up.
3. After the second segment of SIGNAL LED goes off, adjust RT301 so that it lights up again.

MEMO



:

T301: mechanical mid

ure:

une the unit to the 1,000 kHz signal.

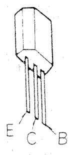
djust output level of signal generator so that he second segment of SIGNAL LED lights up.

fter the second segment of SIGNAL LED goes ff, adjust RT301 so that it lights up again.

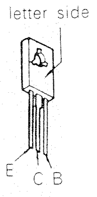
MEMO

Semiconductor Lead Layouts

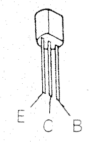
2SA1027R



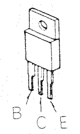
2SB731
2SD809


letter side
E
C
B

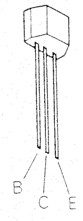
2SB647-B



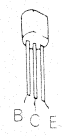
2SB834
2SC1986



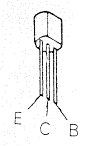
2SC2458



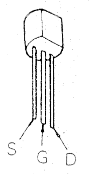
2SC710-14



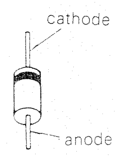
2SA1015
2SC1362
2SC1364
2SC1400
2SD667-A



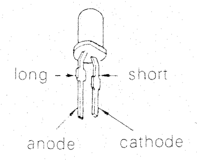
2SK246



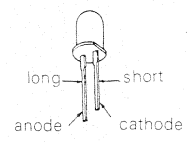
IS1555
10E-2
HZ6A2L
HZ30-3L
HZ7A1L


cathode
anode

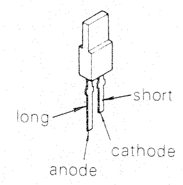
GL-3NG95
GL-3PR5


long
short
anode
cathode

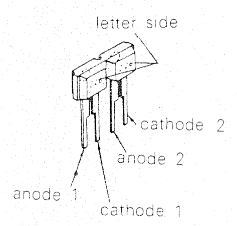
GL-5NY55-A


long
short
anode
cathode

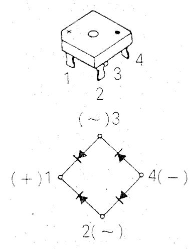
GL-9PR20
GL-9NG2


long
short
cathode
anode

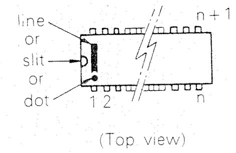
KV-1226


letter side
cathode 2
anode 2
anode 1
cathode 1

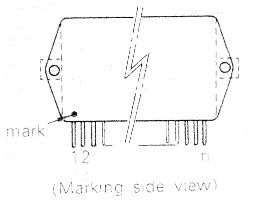
S4VB40



CX-761A
CX-778A
LA1235
LA1245
LA3390
TL489CP
μPA67C
μPD4011C
μPC4557C
μPD4013C
μPD553C131


line
or
slit
or
dot
1 2
n+1
n
(Top view)

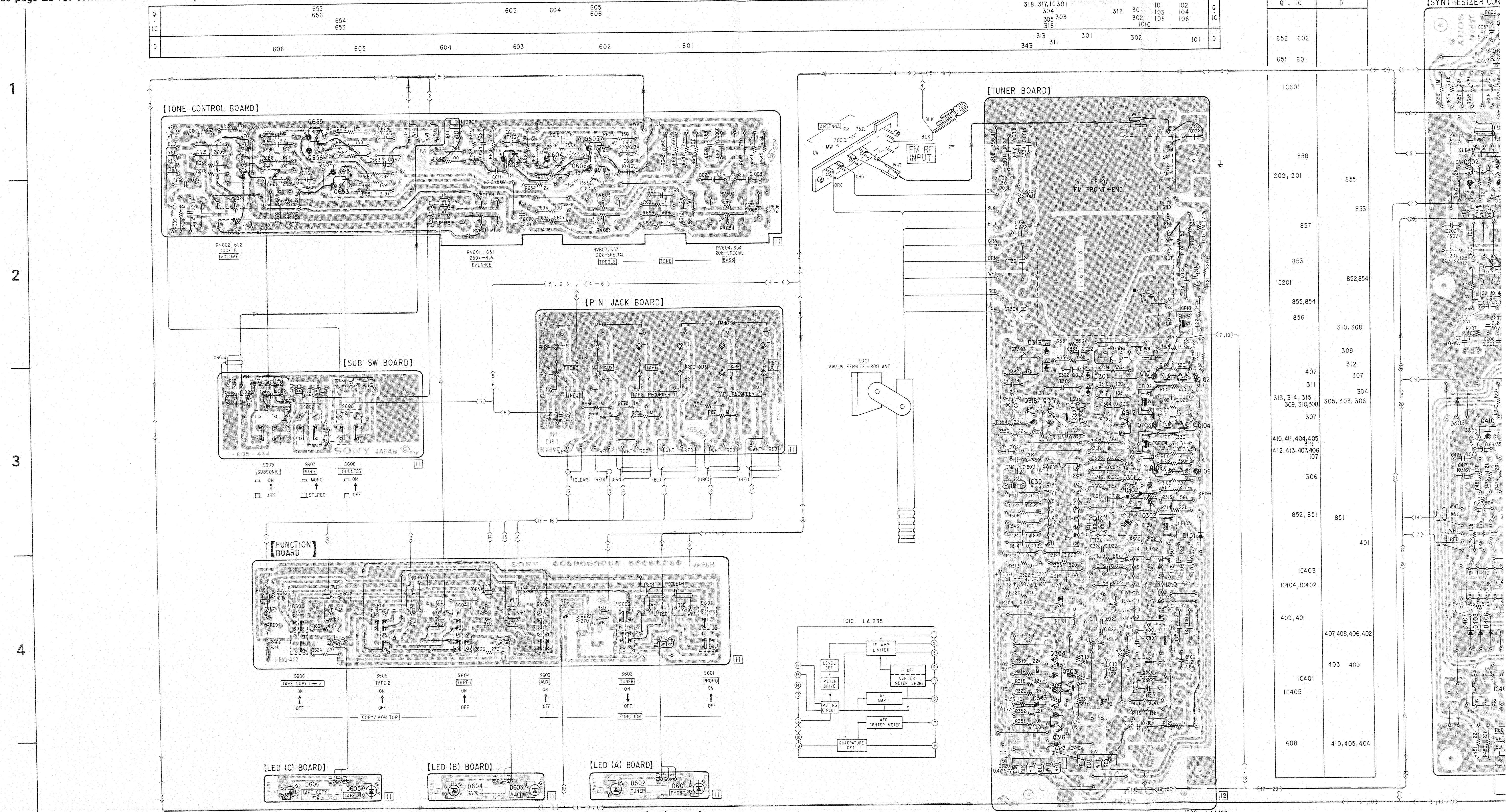
STK-3042
STK-2230

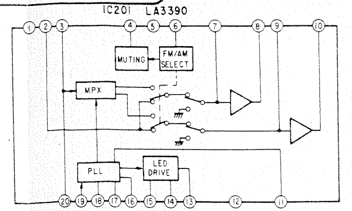

mark
1 2
n
(Marking side view)

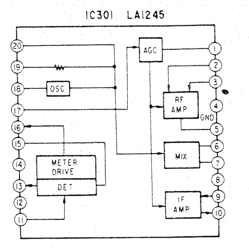
SECTION 4
DIAGRAMS

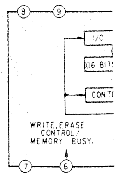
4-1. MOUNTING DIAGRAM

- See page 25 for semiconductor lead layouts.


C
D
E
F
G
H
1
2
3
4
Q · IC
D
655 656 654 653 603 604 605 606
606 605 604 603 602 601
318, 317, IC301 304 305 303 316 312 301 302 IC101 101 102 103 104 105 106
313 311 343 301 302 101
[TONE CONTROL BOARD]
RV602, 652 100k-B VOLUME
RV601, 651 250k-N, M BALANCE
RV603, 653 20k-SPECIAL TREBLE
TONE
RV604, 654 20k-SPECIAL BASS
[PIN JACK BOARD]
PHONO
AUX
TAPE
REC OUT
TAPE RECORDER 1
TAPE RECORDER 2
INPUT
[SUB SW BOARD]
S609 SUBSONIC ON OFF
S607 MODE MONO STEREO
S608 LOUDNESS ON OFF
[FUNCTION BOARD]
S606 TAPE COPY 1→2 ON OFF
S605 TAPE 2 ON OFF
S604 TAPE 1 ON OFF
COPY/MONITOR
S603 AUX ON OFF
S602 TUNER ON OFF
S601 PHONO ON OFF
FUNCTION
[LED (C) BOARD]
D606 TAPE COPY
D605 TAPE 2
[LED (B) BOARD]
D604 TAPE 1
D603 AUX
[LED (A) BOARD]
D602 TUNER
D601 PHONO
ANTENNA
FM 75Ω
300Ω
MW
LW
FM RF INPUT
L001 MW/LW FERRITE-ROD ANT
[TUNER BOARD]
FE101 FM FRONT-END
IC101 LA1235
IF AMP LIMITER
LEVEL DET
METER DRIVE
IF OFF
CENTER METER SHORT
AF AMP
MUTING CIRCUIT
AFC CENTER METER
QUADRATURE DET
Q, IC
D
652 602
651 601
IC601
858
202, 201
855
853
857
853
IC201
852, 854
855, 854
856
310, 308
309
312
402
307
311
304
313, 314, 315 309, 310, 308
305, 303, 306
307
410, 411, 404, 405 412, 413, 407, 406
319
107
306
852, 851
851
401
IC403
IC404, IC402
409, 401
407, 408, 406, 402
403 409
IC401
IC405
408
410, 405, 404
[SYNTHESIZER CON

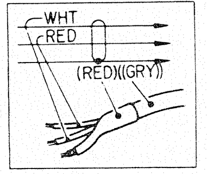

IC201 LA3390
MUTING
FM/AM SELECT
MPX
PLL
LED DRIVE


IC301 LA1245
AGC
OSC
RF AMP
GND
MIX
METER DRIVE
DET
IF AMP


I/O
116 BITS
CONT
WRITE, ERASE CONTROL/ MEMORY BUSY.

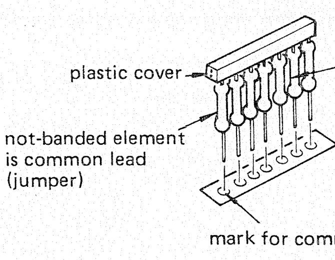
Note:

- Color code of sleeving over the end of the jacket.


WHT
RED
(RED)(GRY)

- ■ : part mounted on the conductor side.
- [-]← : indicates side identified with part number.
- ░ : B + pattern
- ░ : B – pattern
- ▬▶ : signal path
- ▬▷ : L-CH signal path
- ▬▷ : R-CH signal path

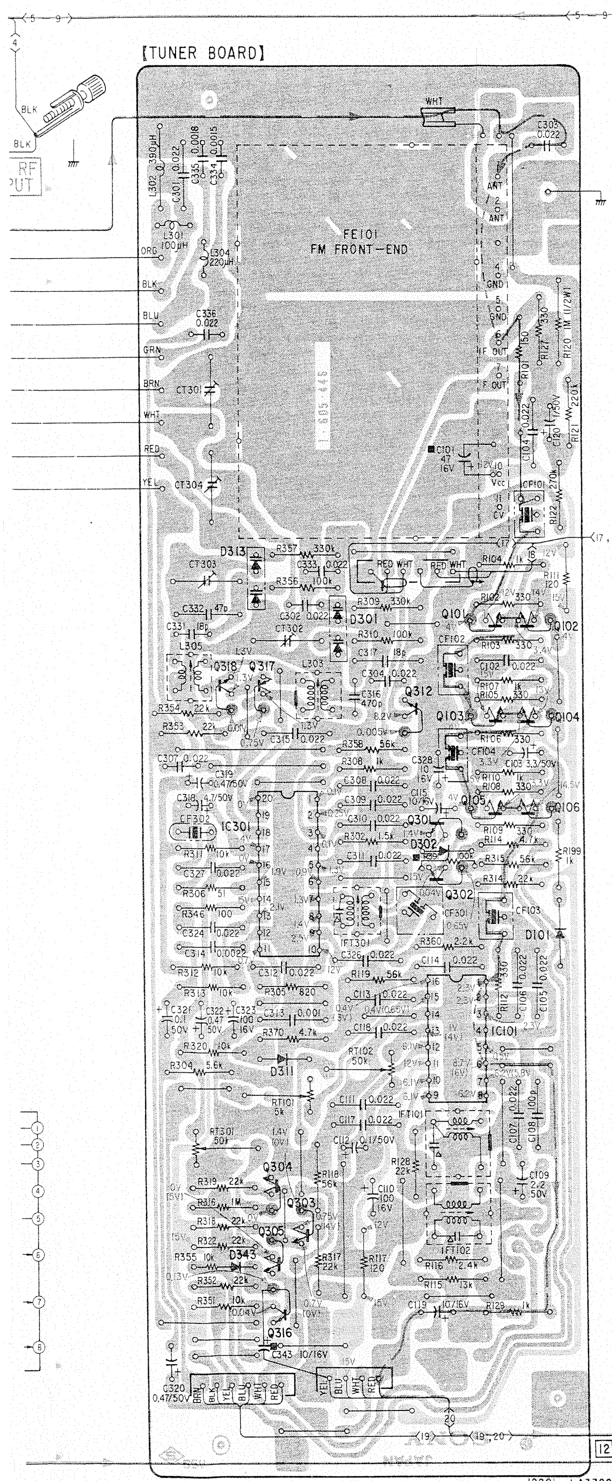
- When one of resistors of combination component CP401 and CP402 is defective;
  a) Strip the plastic covering over the top-side common conductor.
  b) Remove the defective resistor from the common conductor and circuit board.
  c) Install an ordinary single resistor in place of the removed resistor.
  d) Cover the common conductor with adhesive.

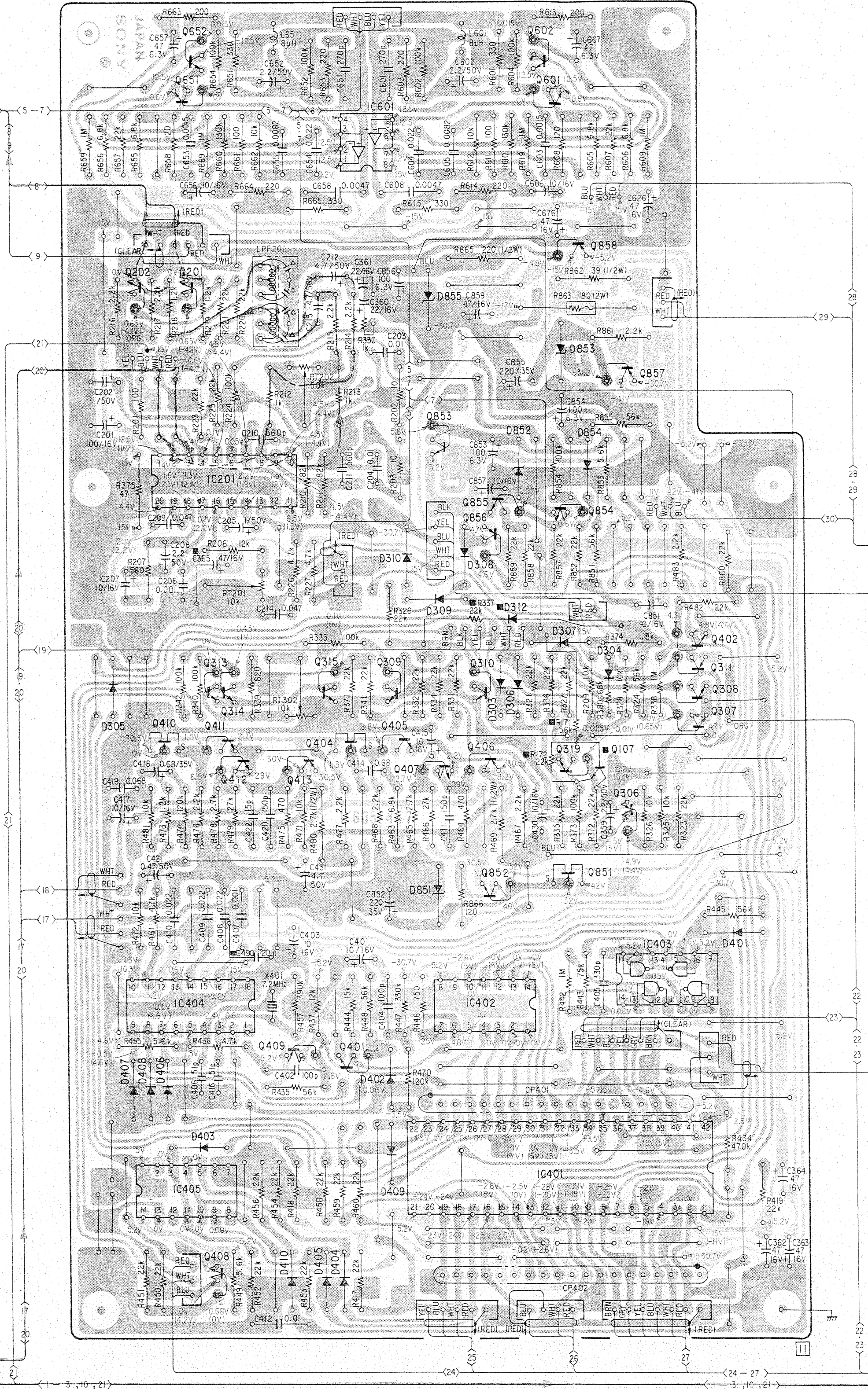

plastic cover
resistors
not-banded element is common lead (jumper)
mark for common lead

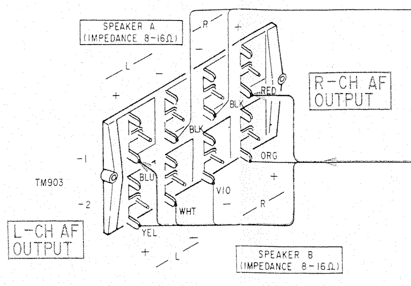
Q·IC	D
318, 317, IC301 304 305 303 316 312 301 302 IC101 101 103 105 102 104 106	313 343 311 301 302 101

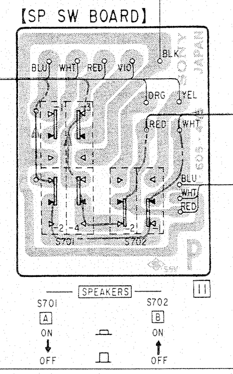
Q , IC	D
652 602	
651 601	
IC601	
858	
202, 201	855
	853
857	
853	
IC201	852,854
855,854	
856	
	310, 308
	309
	312
402	307
311	
	304
313, 314, 315 309, 310,308	305, 303, 306
307	
410, 411, 404, 405 319 412, 413, 407, 406 107	
306	
852, 851	851
	401
IC403	
IC404, IC402	
409, 401	
	407, 408, 406, 402
	403 409
IC401	
IC405	
408	410, 405, 404

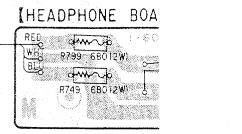
Q·IC	D
IC502 504 503 501 502 IC503 IC501	519 501 510 509 508 518 513 525 526 507 517 527 528 516 204 529 515 504 532 514 533 506 535 534 512 521, 505 520 511

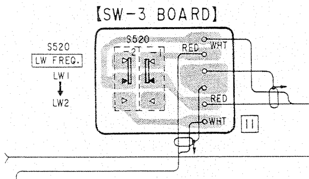

[TUNER BOARD]
FE101
FM FRONT-END
BLK
ORG
BLU
GRN
BRN
WHT
RED
YEL
IC301
IC101
CF101
CF301
12

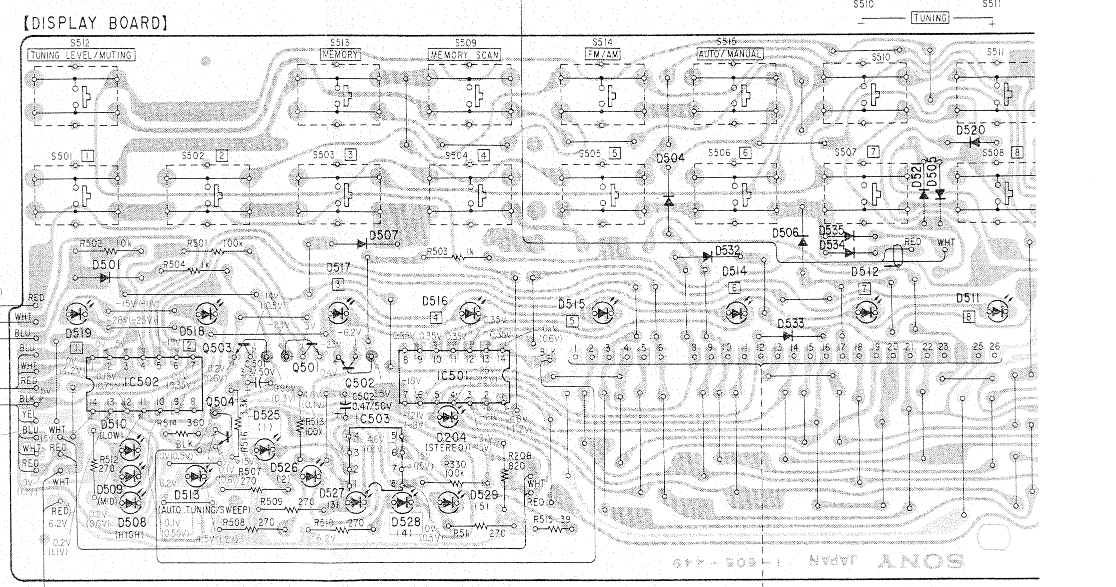

[SYNTHESIZER CONTROL BOARD]
SONY JAPAN
IC601
IC201
IC401
IC402
IC403
IC404
IC405
CP401
CP402
11

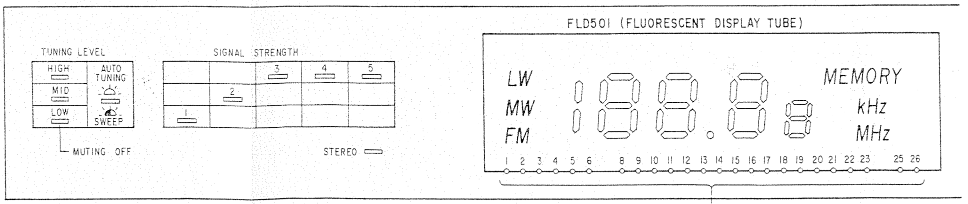

SPEAKER A (IMPEDANCE 8-16Ω)
R-CH AF OUTPUT
L-CH AF OUTPUT
TM903
SPEAKER B (IMPEDANCE 8-16Ω)

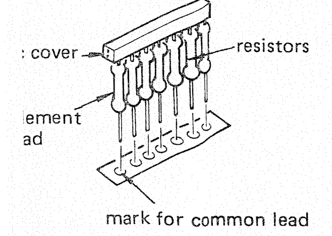

[SP SW BOARD]
S701
S702
SPEAKERS
ON OFF
11


[HEADPHONE BOA
R799 680 (1/2W)
R749 680 (1/2W)

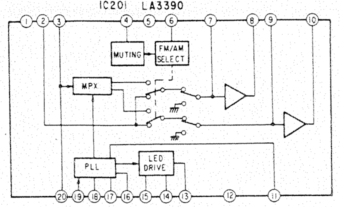

[SW-3 BOARD]
S520
LW FREQ.
LW1
LW2
11


[DISPLAY BOARD]
S512 TUNING LEVEL/MUTING
S513 MEMORY
S509 MEMORY SCAN
S514 FM/AM
S516 AUTO/MANUAL
S510
S511 TUNING
IC501
IC502
IC503
SONY JAPAN 1-605-449

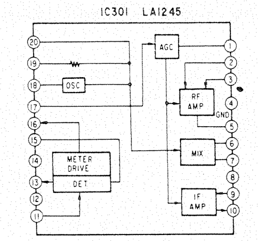

FLD501 (FLUORESCENT DISPLAY TUBE)
TUNING LEVEL
HIGH
MID
LOW
AUTO TUNING
SWEEP
MUTING OFF
SIGNAL STRENGTH
STEREO
LW
MW
FM
MEMORY
kHz
MHz


: cover
resistors
ement
ad
mark for common lead

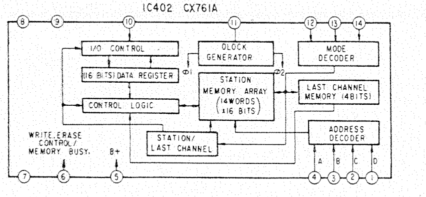
IC201 LA3390


MUTING
FM/AM SELECT
MPX
PLL
LED DRIVE

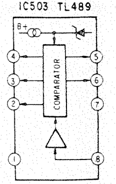
IC301 LA1245


AGC
OSC
RF AMP
MIX
METER DRIVE
DET
IF AMP

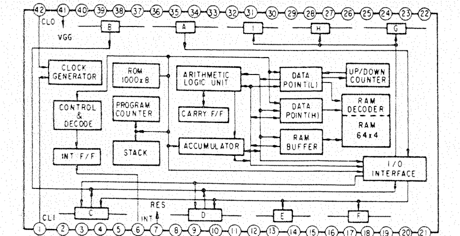
IC402 CX761A


I/O CONTROL
CLOCK GENERATOR
MODE DECODER
16 BITS DATA REGISTER
STATION MEMORY ARRAY (4WORDS) (16 BITS)
LAST CHANNEL MEMORY (4BITS)
CONTROL LOGIC
STATION/LAST CHANNEL
ADDRESS DECODER
WRITE ERASE CONTROL
MEMORY BUSY
B+

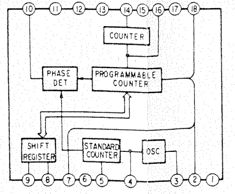
IC503 TL489


COMPARATOR

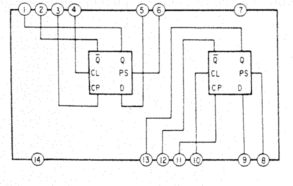
IC401 μPD553C(B)


CLO
VGG
CLOCK GENERATOR
ROM 1000×8
ARITHMETIC LOGIC UNIT
DATA POINTER
UP/DOWN COUNTER
CONTROL DECODE
PROGRAM COUNTER
CARRY F/F
DATA POINTER
P.M DECODER
INT F/F
STACK
ACCUMULATOR
RAM BUFFER
RAM 64×4
I/O INTERFACE
RES
INT
CL1

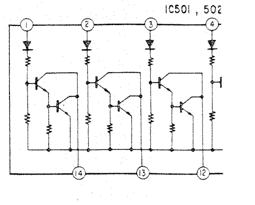
IC404 CX778A


COUNTER
PHASE DET
PROGRAMMABLE COUNTER
SHIFT REGISTER
STANDARD COUNTER
OSC

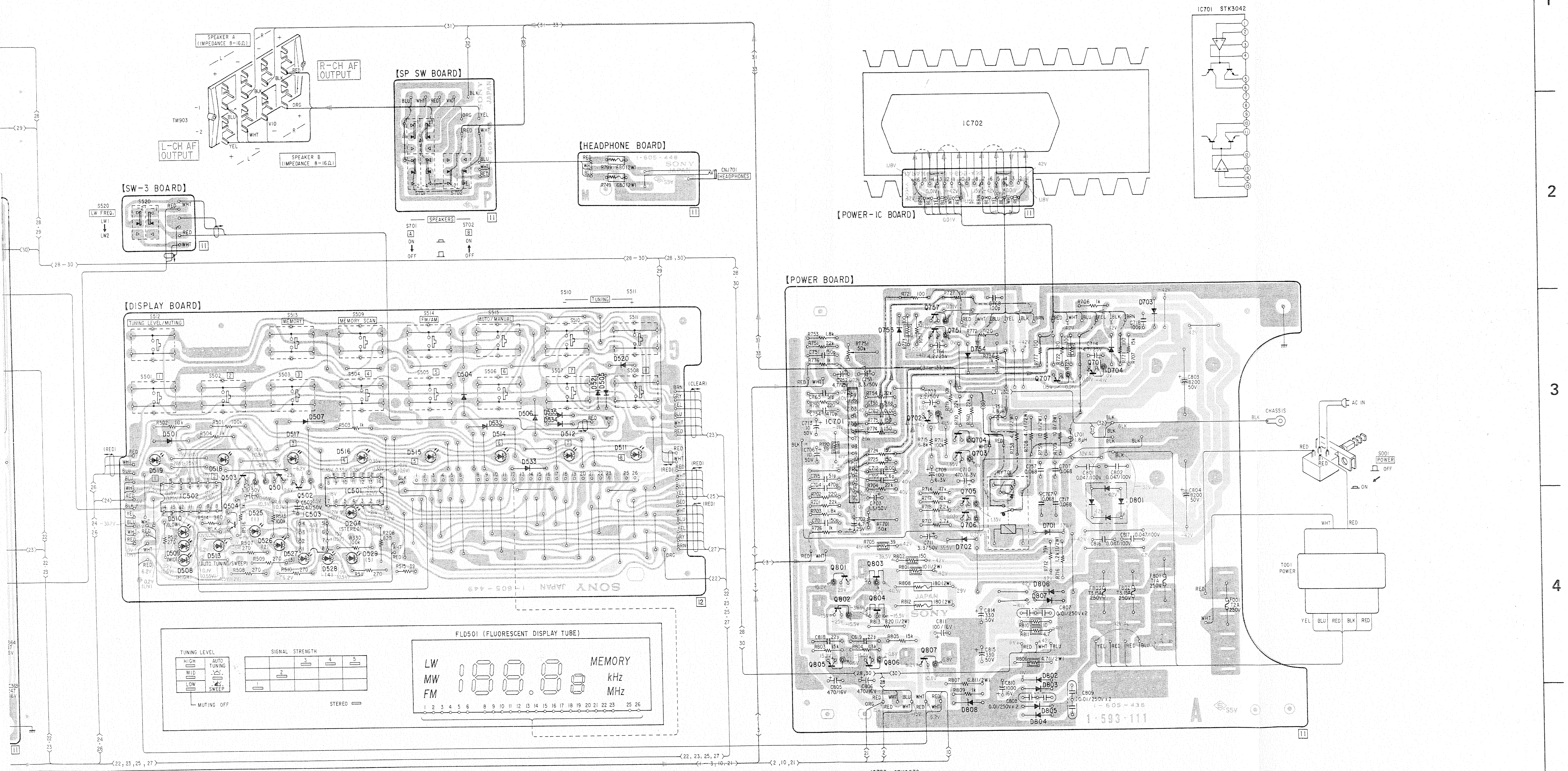
IC405 μPD4013C

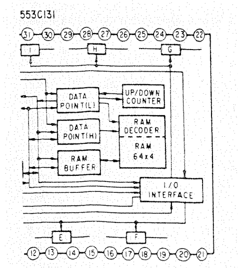


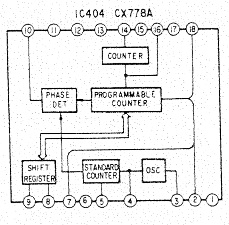
IC501, 502

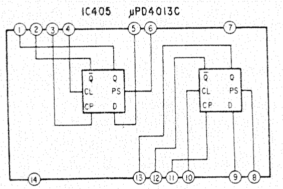


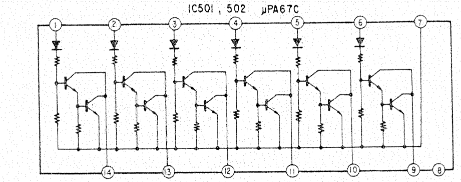
	K	L	M	N	O	P	Q	R
Q·IC	IC502 504	503 501 502 IC503 IC501			801 802 805 IC701 803 804 806 757 751 702 807 704 703 705 706 IC702	707 701		
D	519 501 510 509 508 518 513	525 526 507 517 527 528 516 204 529	515 504 532 514 506 533 535 534 512 521,505	520 511	753 754 702 808	802 803 805 804 701 806 807 801 704 703		

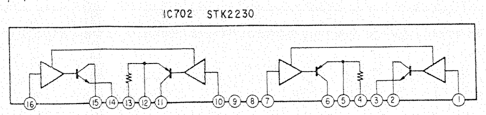

1
2
3
4
5
SPEAKER A (IMPEDANCE 8-16Ω)
SPEAKER B (IMPEDANCE 8-16Ω)
R-CH AF OUTPUT
L-CH AF OUTPUT
TM903
[SP SW BOARD]
SPEAKERS
S701
S702
ON
OFF
[HEADPHONE BOARD]
CNJ701 HEADPHONES
R799 68Ω(1/2W)
R749 68Ω(1/2W)
[SW-3 BOARD]
S520 LW FREQ.
LW1
LW2
[DISPLAY BOARD]
S512 TUNING LEVEL/MUTING
S513 MEMORY
S509 MEMORY SCAN
S514 FM/AM
S515 AUTO/MANUAL
S510
S511
TUNING
S501
S502
S503
S504
S505
S506
S507
S508
CLEAR
IC502
IC501
IC503
FLD501 (FLUORESCENT DISPLAY TUBE)
TUNING LEVEL
HIGH
MID
LOW
AUTO TUNING
SWEEP
MUTING OFF
SIGNAL STRENGTH
STEREO
LW
MW
FM
MEMORY
kHz
MHz
IC702
[POWER-IC BOARD]
IC701 STK3042
[POWER BOARD]
CHASSIS
AC IN
S001 POWER
ON
OFF
T001 POWER
F801 T2A 250V
F802 T3.15A 250V
F803 T3.15A 250V
C803 8200 50V
C804 8200 50V
D801
1-593-111
1-605-435
1-605-449
1-605-448
SONY JAPAN


553C(13)
DATA POINTER
UP/DOWN COUNTER
DATA POINTER
RAM DECODER
RAM 64×4
RAM BUFFER
I/O INTERFACE

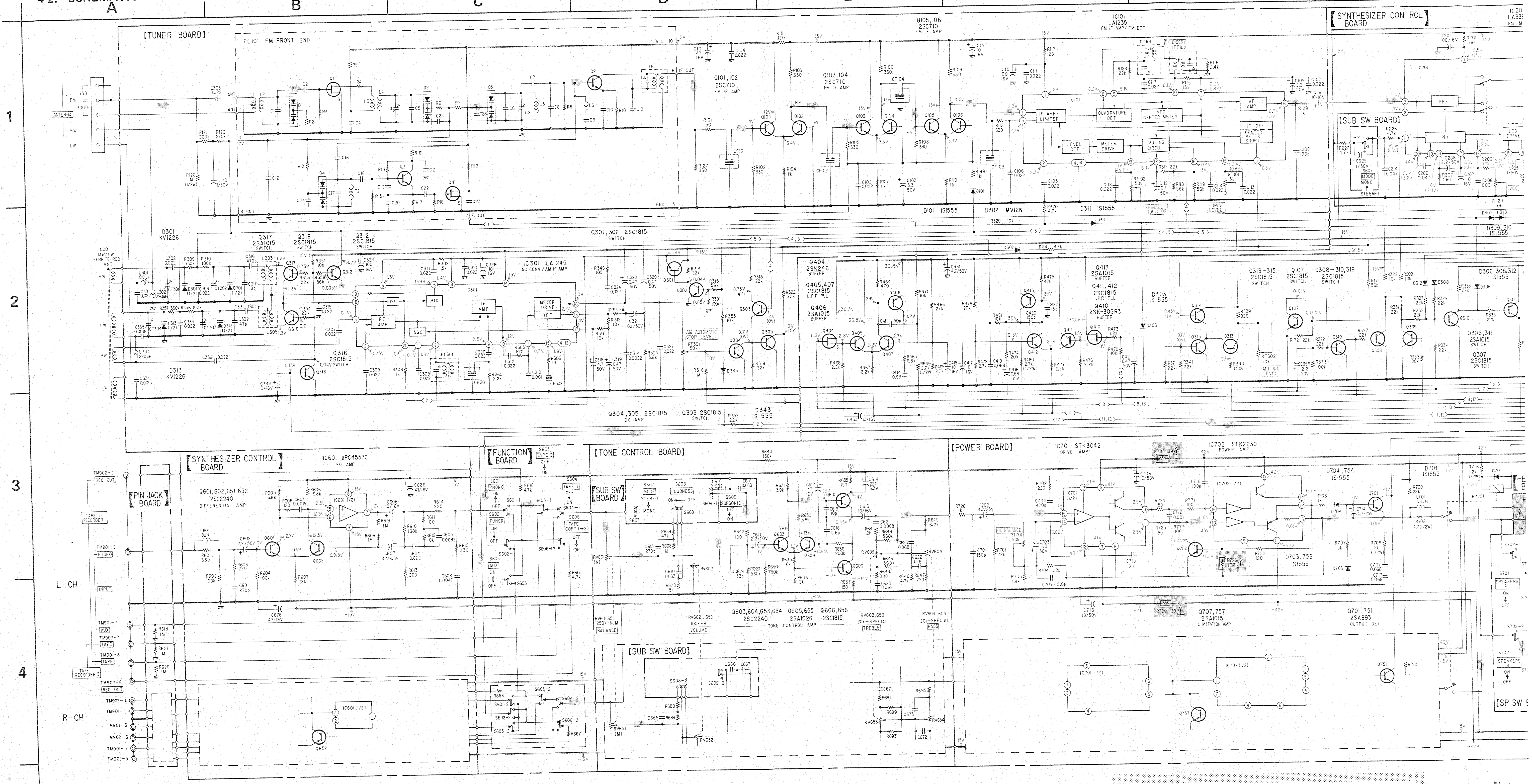

IC404 CX778A
COUNTER
PHASE DET
PROGRAMMABLE COUNTER
SHIFT REGISTER
STANDARD COUNTER
OSC


IC405 μPD4013C


IC501, 502 μPA67C


IC702 STK2230

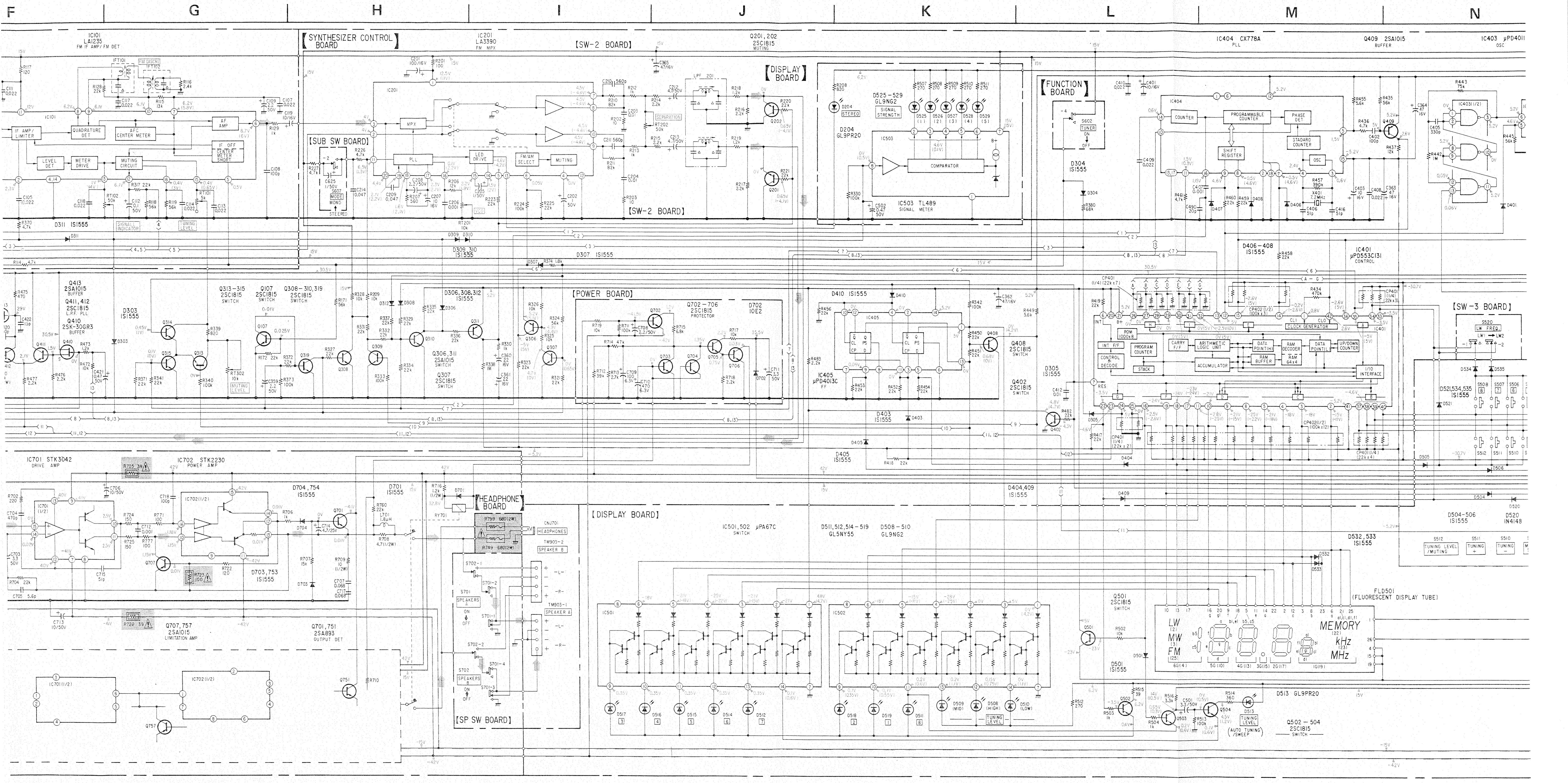
4-2. SCHEMATIC DIAGRAM


A
B
C
D
E
F
G
H
1
2
3
4
[TUNER BOARD]
FE101 FM FRONT-END
ANTENNA
FM 75Ω 300Ω
MW
LW
L001 MW/LW FERRITE-ROD ANT
Q101,102 2SC710 FM IF AMP
Q103,104 2SC710 FM IF AMP
Q105,106 2SC710 FM IF AMP
IC101 LA1235 FM IF AMP/FM DET
IF AMP/LIMITER
QUADRATURE DET
AFC CENTER METER
AF AMP
IF OFF CENTER METER SHORT
LEVEL DET
METER DRIVE
MUTING CIRCUIT
D101 1S1555
D302 MV12N
D311 1S1555
D301 KV1226
Q317 2SA1015 SWITCH
Q318 2SC1815 SWITCH
Q312 2SC1815 SWITCH
IC301 LA1245 AC CONV/AM IF AMP
OSC
MIX
RF AMP
AGC
IF AMP
METER DRIVE
DET
Q301,302 2SC1815 SWITCH
Q316 2SC1815 0.04V SWITCH
D313 KV1226
Q304,305 2SC1815 DC AMP
Q303 2SC1815 SWITCH
D343 1S1555
Q404 2SK246 BUFFER
Q405,407 2SC1815 L.P.F. PLL
Q406 2SA1015 BUFFER
Q413 2SA1015 BUFFER
Q411,412 2SC1815 L.P.F. PLL
Q410 2SK-30GR3 BUFFER
D303 1S1555
Q313-315 2SC1815 SWITCH
Q107 2SC1815 SWITCH
Q306-310,319 2SC1815 SWITCH
Q306,311 2SA1015 SWITCH
Q307 2SC1815 SWITCH
[SYNTHESIZER CONTROL BOARD]
[SUB SW BOARD]
MPX
PLL
LED DRIVE
S607 MODE MONO STEREO
D309,310 1S1555
D306,308,312 1S1555
[SYNTHESIZER CONTROL BOARD]
IC601 μPC4557C EQ AMP
Q601,602,651,652 2SC2240 DIFFERENTIAL AMP
[PIN JACK BOARD]
TM902-2 REC OUT
TAPE RECORDER
TM901-2 PHONO
INPUT
L-CH
R-CH
TM901-4 AUX
TM902-4 TAPE
TM901-6 TAPE
TAPE RECORDER 2
TM902-6 REC OUT
[FUNCTION BOARD]
S605 TAPE 2
S601 PHONO
S602 TUNER
S603 AUX
S604 TAPE 1
S606 TAPE COPY 1→2
[TONE CONTROL BOARD]
[SUB SW BOARD]
S607 MODE STEREO MONO
S608 LOUDNESS
S609 SUBSONIC
RV601,651 250k-N,M BALANCE
RV602,652 100k-B VOLUME
Q603,604,653,654 2SC2240
Q605,655 2SA1026
Q606,656 2SC1815
TONE CONTROL AMP
RV603,653 20k-SPECIAL TREBLE
RV604,654 20k-SPECIAL BASS
[SUB SW BOARD]
[POWER BOARD]
IC701 STK3042 DRIVE AMP
IC702 STK2230 POWER AMP
D704,754 1S1555
D701 1S1555
D703,753 1S1555
Q707,757 2SA1015 LIMITATION AMP
Q701,751 2SA893 OUTPUT DET
DC BALANCE RT701
S701 SPEAKERS
S702 SPEAKERS
[SP SW

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Note:
- Com
char
- All c
50W
and
- All
kΩ


F
G
H
I
J
K
L
M
N
IC101 LA1235 FM IF AMP/FM DET
SYNTHESIZER CONTROL BOARD
IC201 LA3390 FM MPX
SW-2 BOARD
Q201,202 2SC1815 MUTING
IC404 CX778A PLL
Q409 2SA1015 BUFFER
IC403 μPD4011 OSC
DISPLAY BOARD
FUNCTION BOARD
SUB SW BOARD
IC503 TL489 SIGNAL METER
IC401 μPD553C131 CONTROL
POWER BOARD
SW-3 BOARD
IC405 μPD4013C FF
IC701 STK3042 DRIVE AMP
IC702 STK2230 POWER AMP
HEADPHONE BOARD
SP SW BOARD
IC501,502 μPA67C SWITCH
FL501 (FLUORESCENT DISPLAY TUBE)
MEMORY
kHz
MHz
LW
MW
FM
D513 GL9PR20
Q502–504 2SC1815 SWITCH
Q707,757 2SA1015 LIMITATION AMP
Q701,751 2SA893 OUTPUT DET

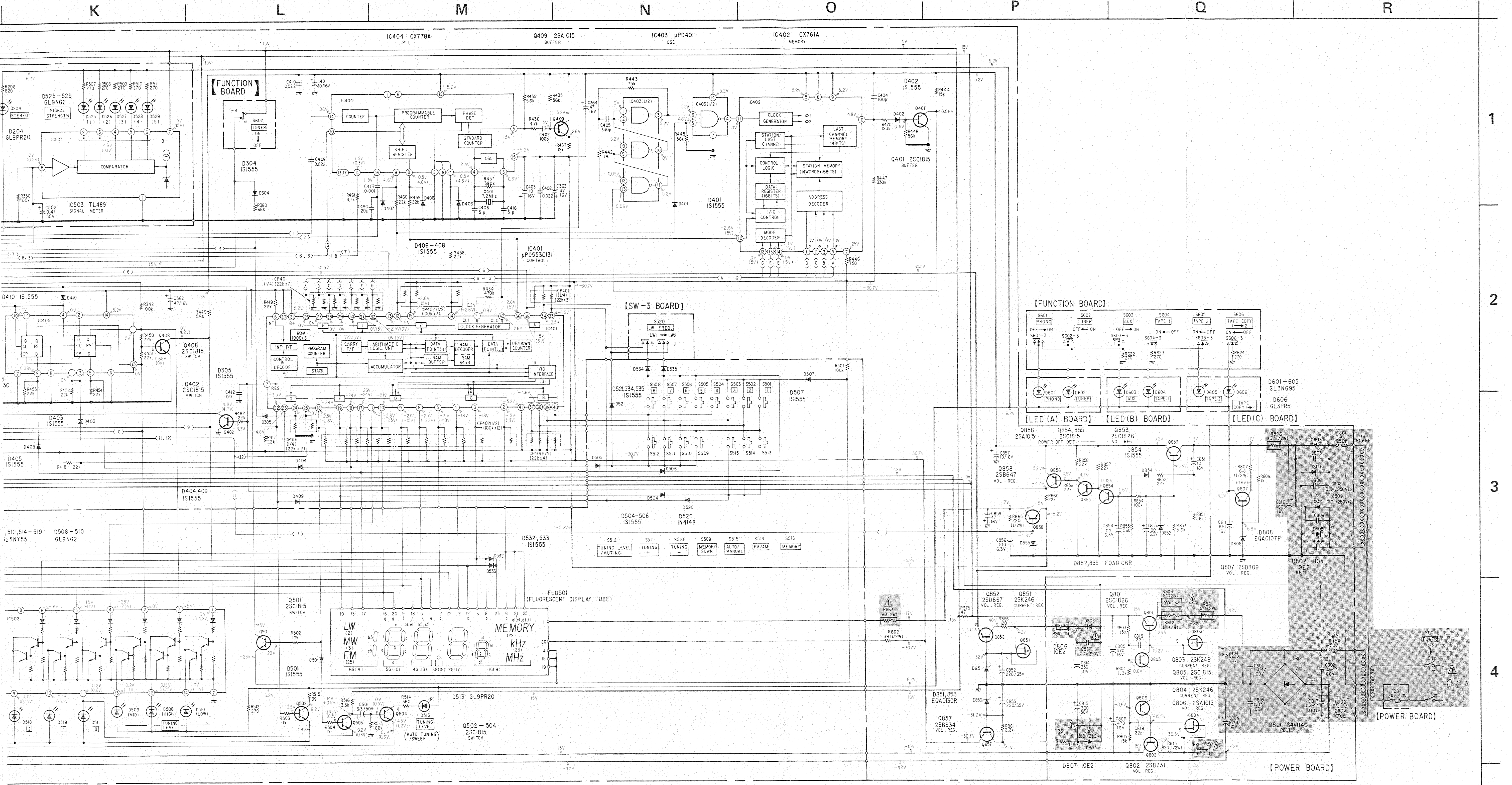
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Note:

- Components for right channel have same values as for left channel.
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, ¼W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- ➡ : signal path
- △ : internal component.
- ▭ : panel designation.
- ▭ : adjustment for repair.
- ━ : B+ bus.
- ╍ : B- bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal (detuned) conditions with a VOM (50 kΩ/V).
- ( ) : FM STEREO
- Voltage variations may be noted due to normal production tolerances.
- Switch

Ref. No.	
S001	POWER
S002	AM CH SP
S501~508	Preset 1
S509	MEMORY
S510	TUNING -
S511	TUNING +
S512	TUNING L


K
L
M
N
O
P
Q
R
1
2
3
4
5
IC404 CX778A PLL
Q409 2SA1015 BUFFER
IC403 μPD4011 OSC
IC402 CX761A MEMORY
[FUNCTION BOARD]
IC503 TL489 SIGNAL METER
D525-529 GL9NG2
D204 GL9PR20
D304 1S1555
PROGRAMMABLE COUNTER
PHASE DET
SHIFT REGISTER
STANDARD COUNTER
OSC
CLOCK GENERATOR
STATION/LAST CHANNEL
LAST CHANNEL MEMORY
CONTROL LOGIC
STATION MEMORY
DATA REGISTER
ADDRESS DECODER
I/O CONTROL
MODE DECODER
Q401 2SC1815 BUFFER
D401 1S1555
D402 1S1555
D406-408 1S1555
IC401 μPD553C131 CONTROL
Q408 2SC1815 SWITCH
Q402 2SC1815 SWITCH
D305 1S1555
D403 1S1555
D405 1S1555
D404,409 1S1555
D410 1S1555
IC405
ROM
INT F/F
PROGRAM COUNTER
CARRY F/F
ARITHMETIC LOGIC UNIT
DATA POINTER
RAM BUFFER
RAM DECODER
RAM
DATA POINTER
UP/DOWN COUNTER
CONTROL & DECODE
STACK
ACCUMULATOR
I/O INTERFACE
[SW-3 BOARD]
S520 LW FREQ.
D521,534,535 1S1555
D507 1S1555
D504-506 1S1555
D520 1N4148
S512 TUNING LEVEL /MUTING
S511 TUNING +
S510 TUNING −
S509 MEMORY SCAN
S515 AUTO/MANUAL
S514 FM/AM
S513 MEMORY
D532,533 1S1555
FL501 (FLUORESCENT DISPLAY TUBE)
LW MW FM MEMORY kHz MHz
Q501 2SC1815 SWITCH
D501 1S1555
D513 GL9PR20
Q502-504 2SC1815 SWITCH
TUNING LEVEL
(AUTO TUNING) /SWEEP
D508-510 GL9NG2
IC502
[FUNCTION BOARD]
S601 PHONO
S602 TUNER
S603 AUX
S604 TAPE 1
S605 TAPE 2
S606 TAPE COPY
[LED (A) BOARD]
[LED (B) BOARD]
[LED (C) BOARD]
D601-605 GL3NG95
D606 GL3PR5
Q856 2SA1015 POWER OFF DET
Q854,855 2SC1815
Q853 2SC1826 VOL. REG.
D854 1S1555
Q858 2SB647 VOL. REG.
D852,855 EQA0106R
Q807 2SD809 VOL. REG.
D808 EQA0107R
D802-805 10E2 RECT
Q852 2SD667 VOL. REG.
Q851 2SK246 CURRENT REG
D851,853 EQA0130R
Q857 2SB834 VOL. REG.
Q801 2SC1826 VOL. REG.
Q803 2SK246 CURRENT REG
Q805 2SC1815 VOL. REG.
Q804 2SK246 CURRENT REG
Q806 2SA1015 VOL. REG.
D806 10E2
D807 10E2
Q802 2SB731 VOL. REG.
D801 S4VB40 RECT
T001 POWER
S001 POWER
F001 T2A/250V
AC IN
[POWER BOARD]
[POWER BOARD]

ernal component.
nel designation.
justment for repair.
bus.
bus.
re dc with respect to ground unless otherwise

re taken under no-signal (detuned) conditions
M (50 kΩ/V).
FM STEREO

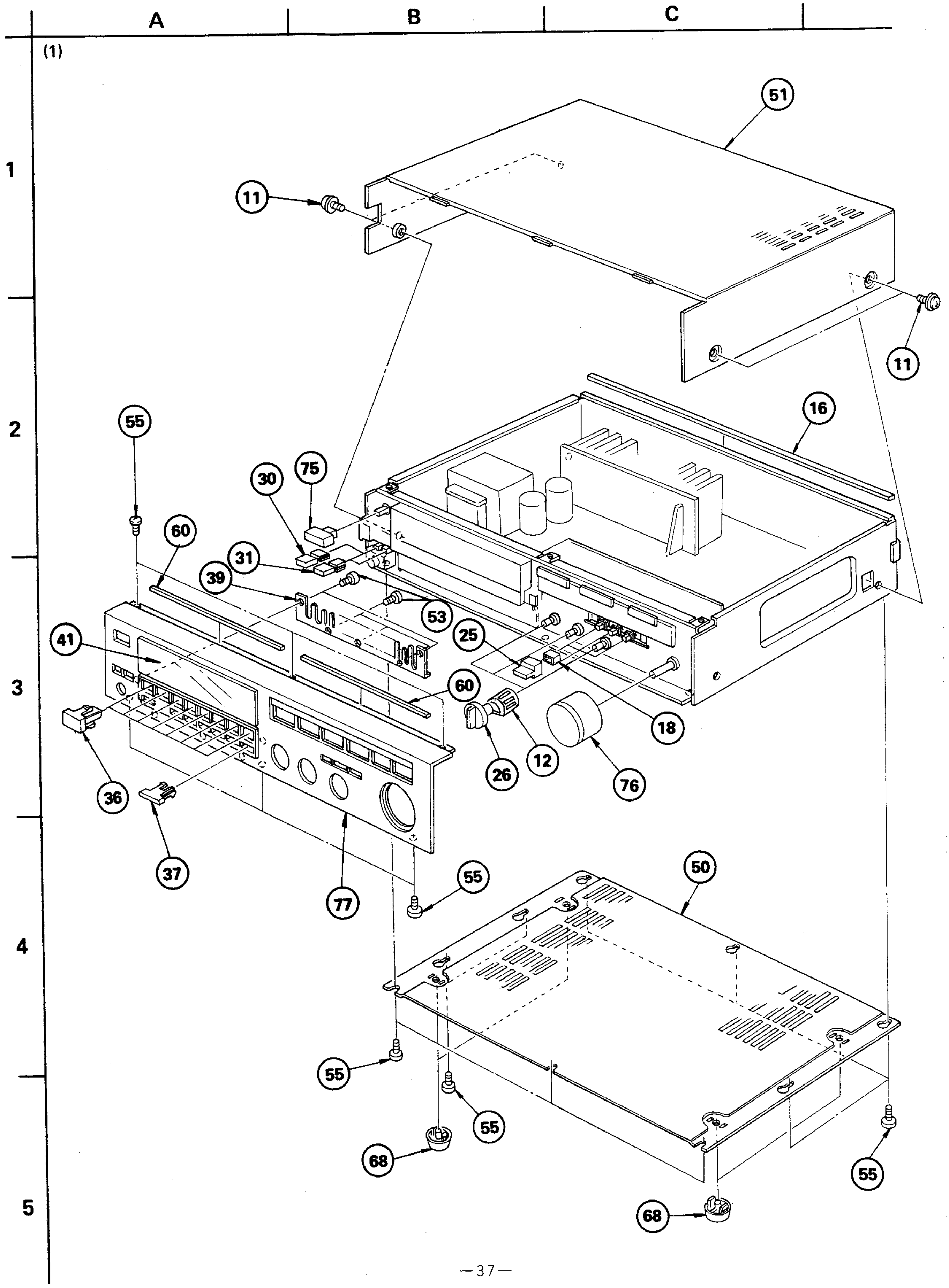
- Voltage variations may be noted due to normal production tolerances.

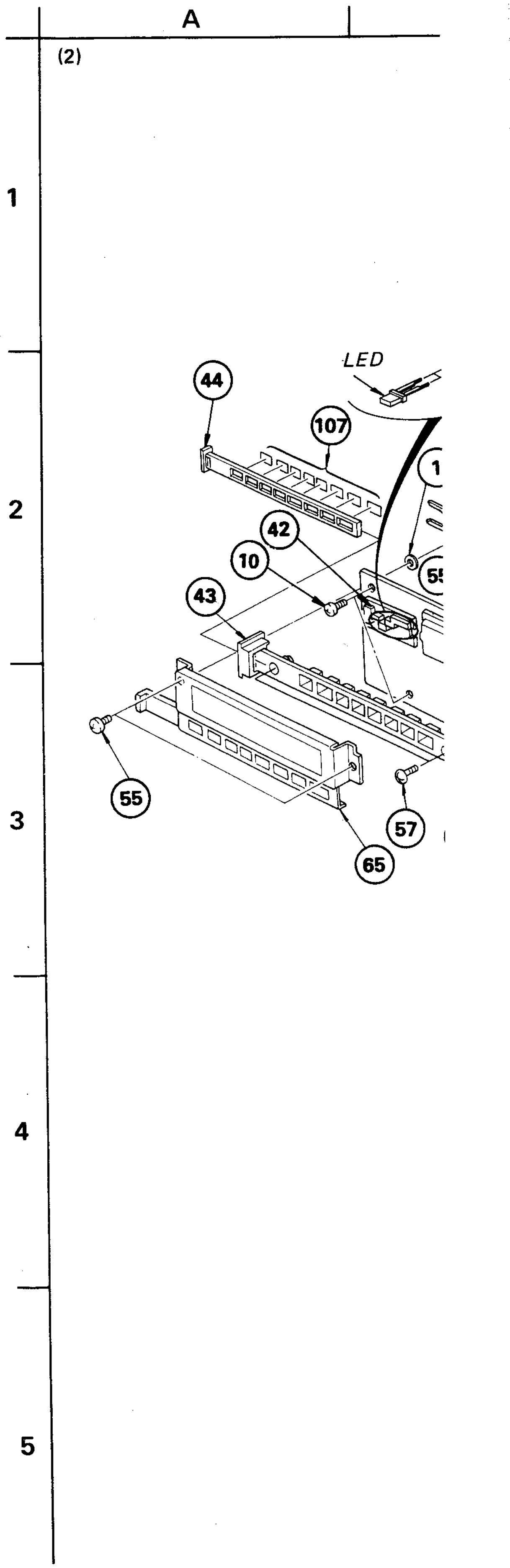
- Switch

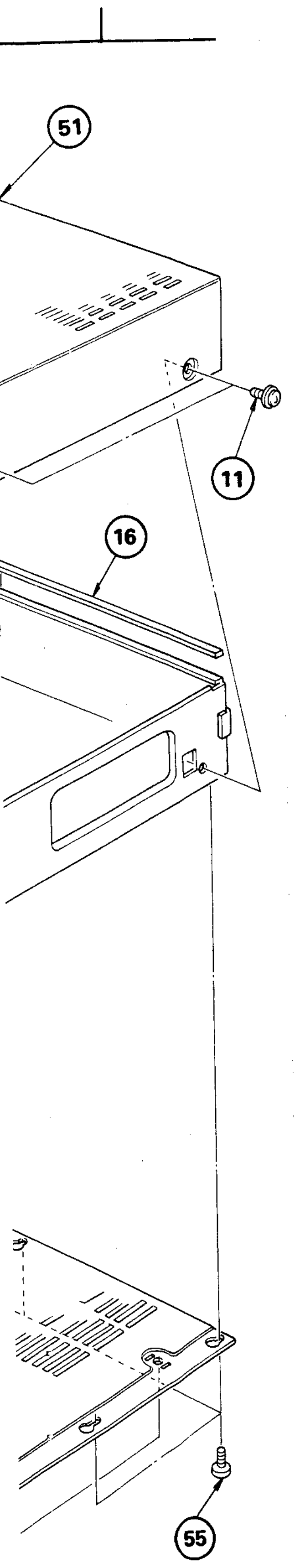
Ref. No.	Switch	Position	Ref. No.	Switch	Position	Ref. No.	Switch	Position
S001	POWER	OFF	S513	MEMORY	–	S605	TAPE 2	OFF
S002	AM CH SPACE	9 kHz	S514	FM/AM	–	S606	TAPE COPY	OFF
S501~508	Preset 1 ~ 8	–	S515	AUTO/MANUAL	–	S607	MODE	STEREO
S509	MEMORY SCAN	–	S601	PHONO	OFF	S608	LOUDNESS	OFF
S510	TUNING –	–	S602	TUNER	ON	S609	SUBSONIC	OFF
S511	TUNING +	–	S603	AUX	OFF	S701	SPEAKERS A	ON
S512	TUNING LEVEL/MUNING	–	S604	TAPE 1	OFF	S702	SPEAKERS B	OFF

SECTION 5

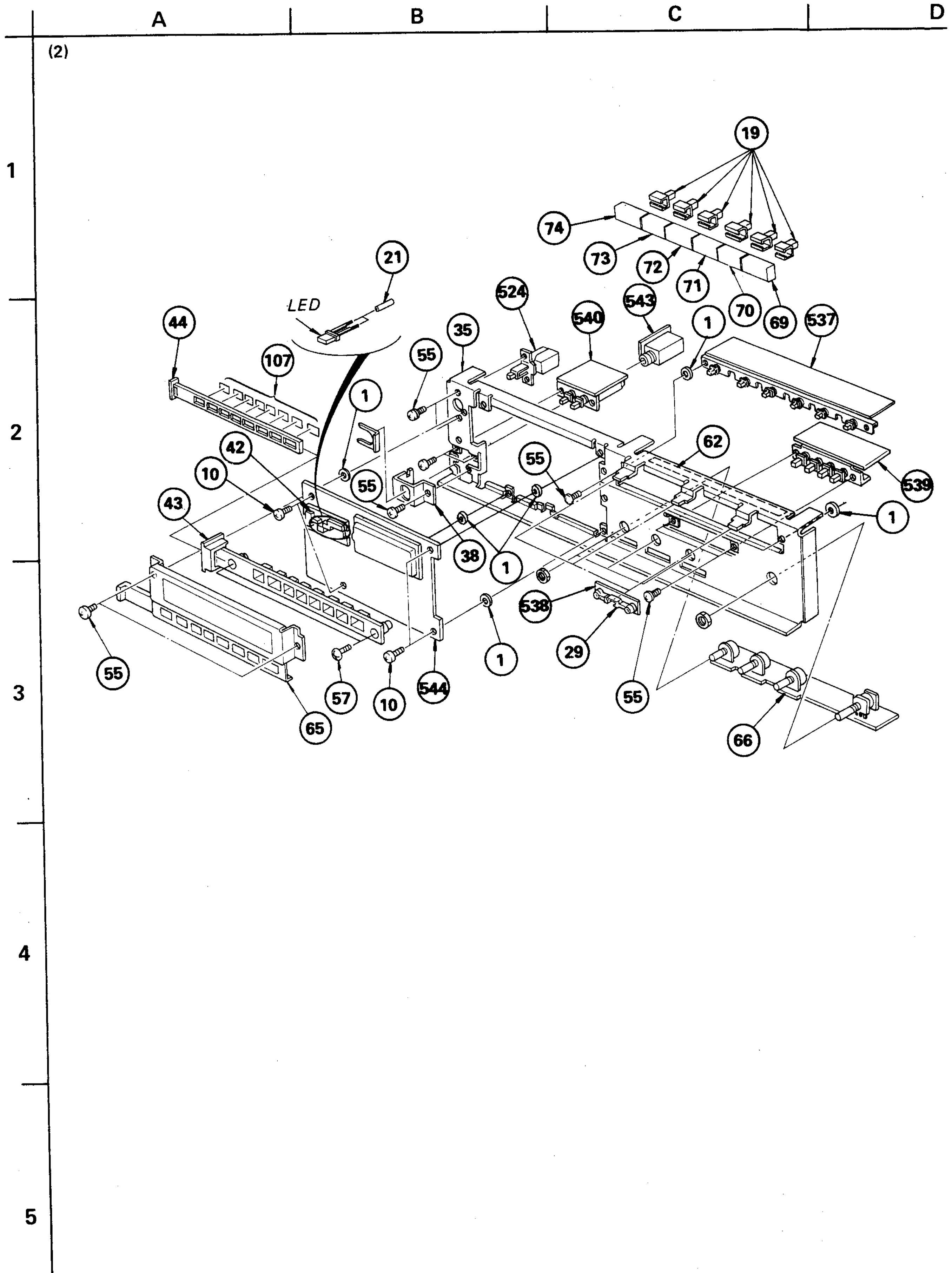
EXPLODED VIEWS AND PARTS LIST


A
B
C
(1)
1
2
3
4
5
51
11
11
16
55
75
30
60
31
39
53
41
25
60
18
12
26
76
36
37
77
55
50
55
55
68
55
68

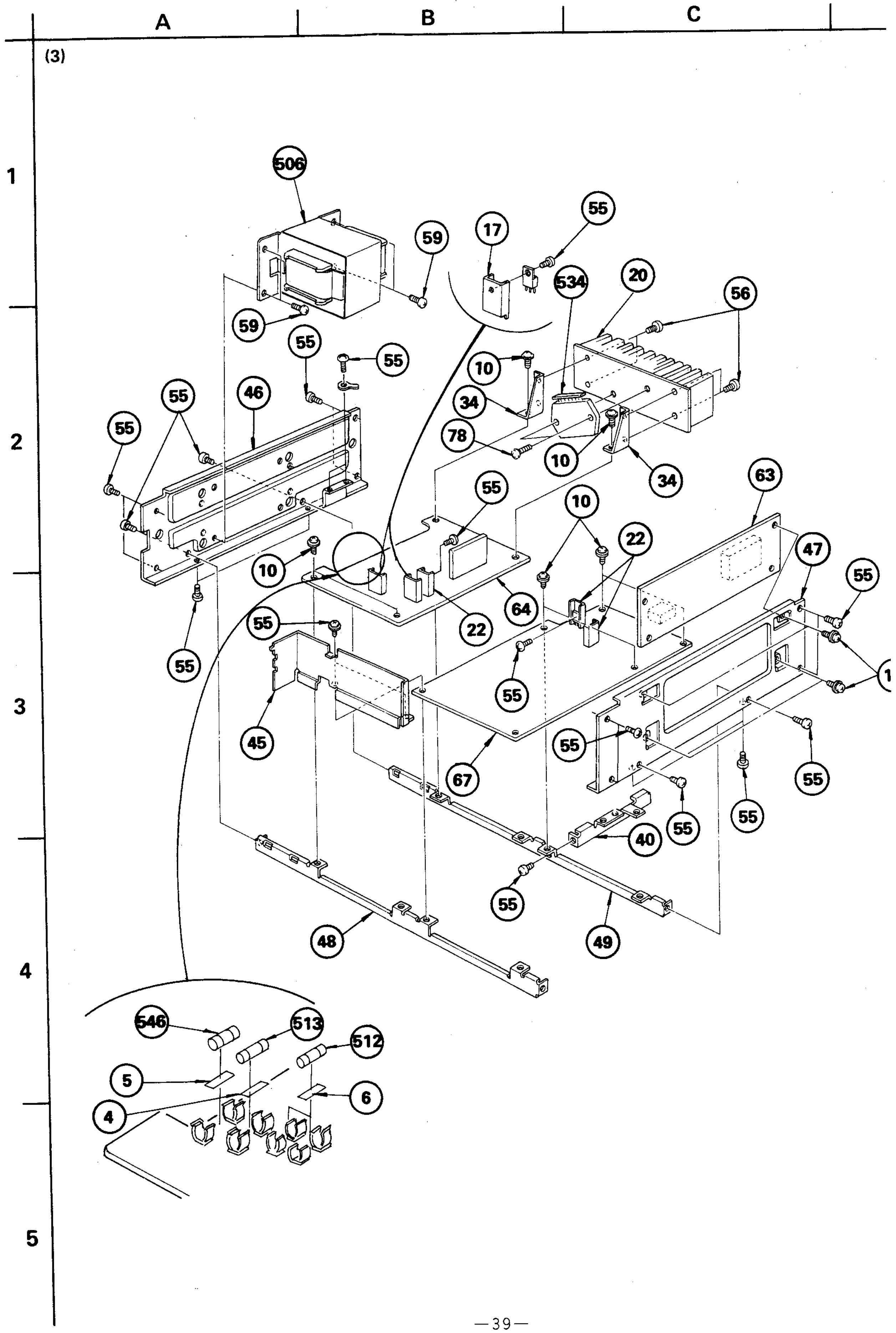

A
(2)
1
2
3
4
5
LED
44
107
42
10
43
55
57
65

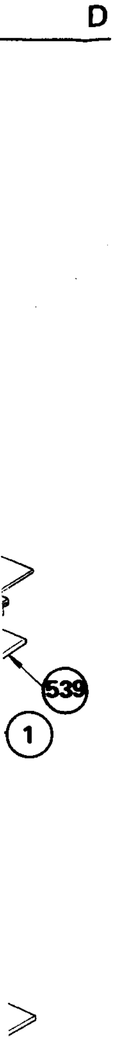


(2)

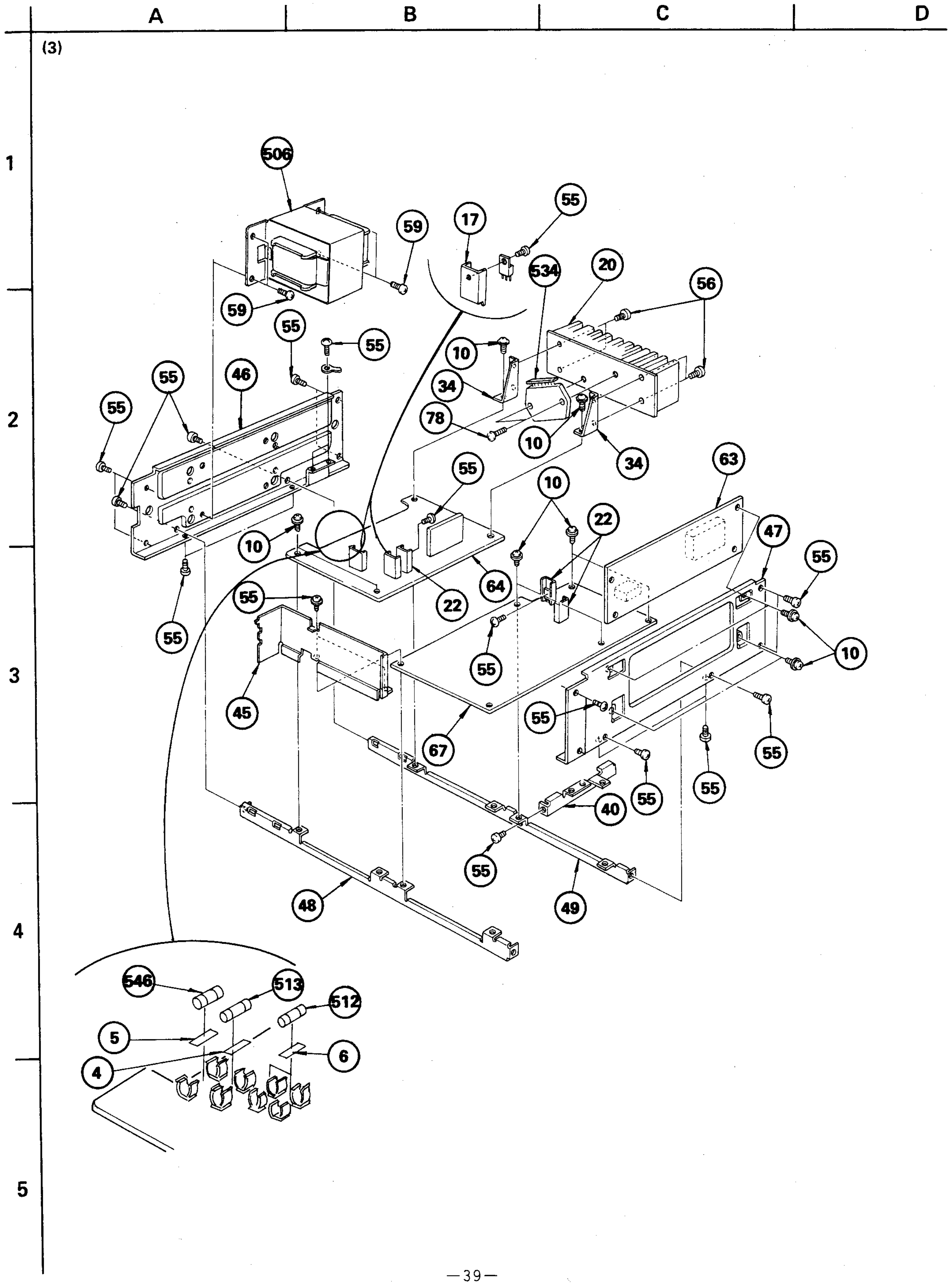

A
B
C
D
LED

(3)

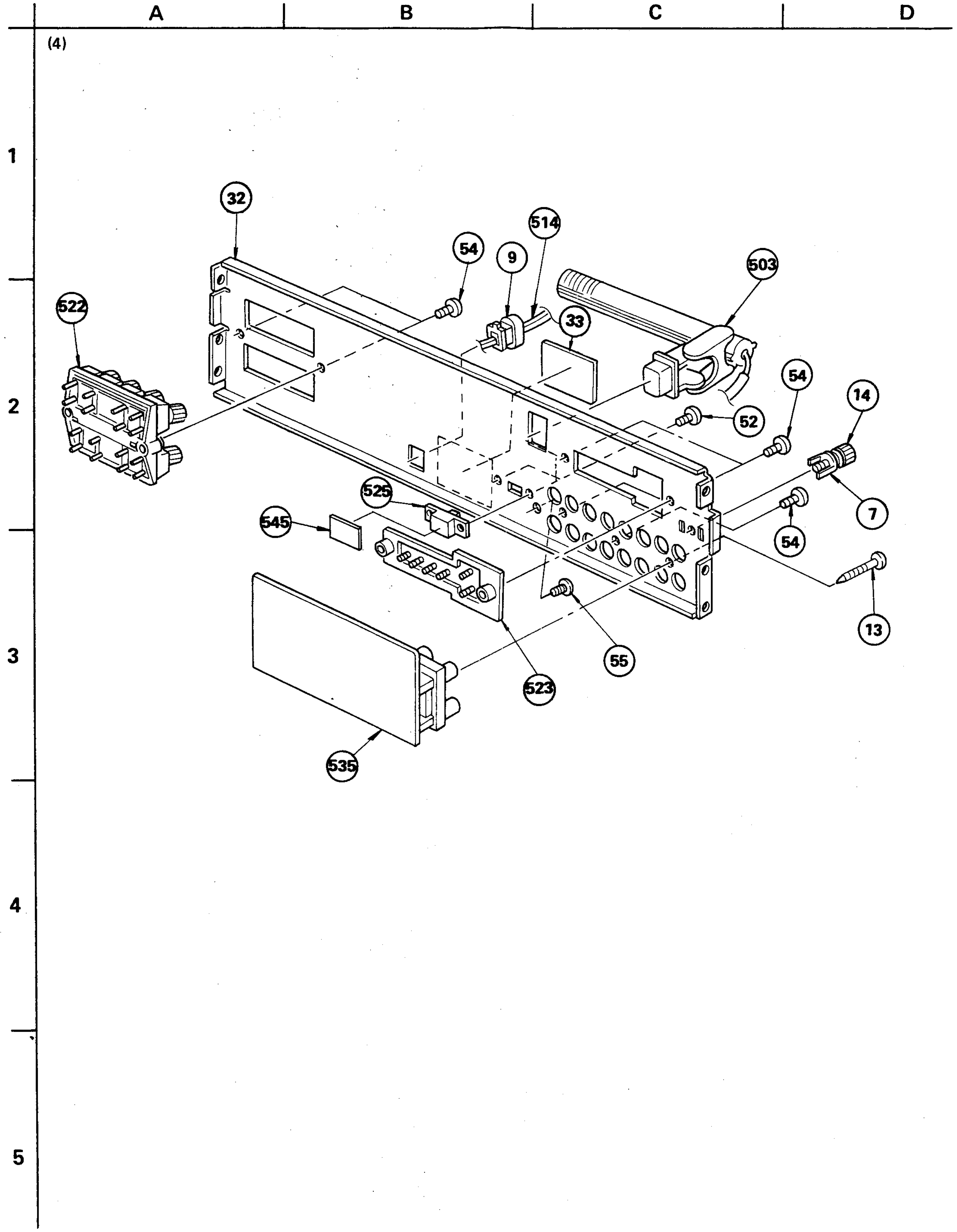

A
B
C


D
539
1

(3)


A
B
C
D

(4)


A
B
C
D

GENERAL SECTION

No.	Part No.	Description
1	3-655-862-00	SPACER, INSULATING
2	....	
3	....	
4	3-701-948-14	LABEL, FUSE (1A)
5	♠;3-701-948-17	LABEL, FUSE (2A)
6	3-701-948-19	LABEL, FUSE (3.15A)
7	3-701-993-00	SPACER, TERMINAL
8	3-703-079-21	LABEL, CAUTION (BACK)
9	3-703-244-00	BUSHING, CORD
10	3-703-249-01	SCREW, S TIGHT, +PTTWH 3X6
11	3-703-354-11	SCREW (OS), CASE, CLAW
12	3-703-466-00	SPRING (6600)
13	3-703-473-00	SCREW, TERMINAL
14	3-706-165-00	SCREW
15	....	
16	4-848-642-00	CUSHION, VIBRATION
17	♠;4-861-002-11	HEAT SINK
18	4-864-307-00	RING
19	4-866-342-00	JOINT (B), KNOB
20	♠;4-866-369-00	HEAT SINK
21	♠;4-866-397-00	CUSHION, LED
22	♠;4-866-647-00	HEAT SINK
23	....	
24	....	
25	4-874-058-41	KNOB, SQUARE (3X14)
26	4-875-152-00	KNOB, CONTROL
27	....	
28	....	
29	4-876-717-00	HOLDER (F), LED
30	4-876-722-01	KNOB (4X10), SPEAKERS
31	4-876-722-11	KNOB (4X10), SPEAKERS
32	♠;4-877-101-00	PLATE, JACK
33	4-877-111-00	LABEL, MODEL NUMBER
33	4-877-109-00	LABEL, MODEL NUMBER
34	♠;4-877-122-00	BRACKET (A), HEAT SINK
35	♠;4-877-126-00	PANEL, SUB
36	4-877-127-01	KNOB (A)
37	4-877-128-01	KNOB (B)
38	♠;4-877-132-00	BRACKET, JACK
39	♠;4-877-134-00	SPRING, LEAF
40	♠;4-877-135-00	CHANNEL (C)
41	4-877-137-00	WINDOW (A), INDICATOR
42	4-877-140-00	HOLDER (B), LED
43	♠;4-877-141-00	HOUSE, LED
44	4-877-142-00	HOLDER, DIAL SCALE
45	♠;4-877-144-00	PLATE (B), SHIELD

GENERAL SECTION

No.	Part No.	Description
46	♠;4-877-147-00	PLATE (L), SIDE
47	♠;4-877-148-00	PLATE (R), SIDE
48	♠;4-877-149-00	CHANNEL (B)
49	♠;4-877-150-00	CHANNEL (A)
50	♠;4-877-154-00	PLATE, BOTTOM
51	4-877-155-00	CASE
52	7-621-255-25	SCREW +P 2X4
53	7-685-133-11	SCREW +P 2.6X6 TYPE1
54	7-685-646-11	SCREW +BVTP 3X8 TYPE2 N-S
55	7-685-871-01	SCREW +BVTT 3X6 (S)
56	7-685-872-01	SCREW +BVTT 3X8 (S)
57	7-685-873-01	SCREW +BVTT 3X10 (S)
58	7-685-875-01	SCREW +BVTT 3X14 (S)
59	7-685-880-01	SCREW +BVTT 4X6 (S)
60	9-911-845-XX	CUSHION
61	....	
62	9-911-863-XX	SHEET, INSULATING
63	♠;A-4382-098-A	MOUNTED PCB, TUNER
64	A-4388-284-A	MOUNTED PCB, POWER
65	A-4457-040-A	PLATE ASSY, ORNAMENTAL
66	♠;A-4477-079-A	MOUNTED PCB, TONE CONTROL
67	♠;A-4483-014-A	MOUNTED PCB, CONTROL
68	X-3701-069-0	FOOT ASSY, M.F
69	X-4875-101-0	KNOB ASSY, PHONO
70	X-4875-102-0	KNOB ASSY, TUNER
71	X-4875-103-0	KNOB ASSY, AUX
72	X-4875-104-0	KNOB ASSY, TAPE (1)
73	X-4875-105-0	KNOB ASSY, TAPE (2)
74	X-4875-106-0	KNOB ASSY, TAPE COPY
75	X-4875-108-0	KNOB ASSY, POWER
76	X-4876-702-0	KNOB (DIA.40) ASSY, VOLUME
77	X-4877-103-1	PANEL ASSY, FRONT
78	7-685-649-11	SCREW +BVTP 3X14

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " ♠ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.

- F : nonflammable

COILS

- MMH : mH, UH : μH

ACCESSORY & PACKING MATERIAL

No.	Part No.	Description
101	1-501-161-00	ANTENNA, FEEDER
102	3-701-630-00	BAG, POLYETHYLENE
103	3-703-157-01	LABEL, DESTINATION
104	3-783-698-51	MANUAL, INSTRUCTION
105	....	
106	4-873-610-00	SHEET, PROTECTION
107	4-875-314-00	INDICATOR, STATION
108	....	
109	4-876-765-00	CUSHION (LEFT), LOWER
110	4-876-766-00	CUSHION (RIGHT), LOWER
111	4-876-767-00	CUSHION (UPPER)
112	4-877-158-00	TRAY, MASTER
113	4-877-159-00	HOLDER, MASTER
114	4-877-160-00	INDIVIDUAL CARTON
115	4-877-161-00	INDIVIDUAL CARTON

ELECTRICAL PARTS

Ref.No.	Part No.	Description
501	....	
502	....	
503	1-401-929-00	ANTENNA, FERRITE-ROD (MW/LW)(L001)
504	1-404-338-00	TRANSFORMER, DISCRIMINATOR(FM)(IFT101)
505	1-404-339-00	TRANSFORMER, DISCRIMINATOR(IFT102)
506	⚠.1-447-040-00	TRANSFORMER,POWER(PT001)
507	♠;1-508-805-00	U TYPE BASE POST
508	♠;1-508-809-00	BASE POST (14MM) 2P
509	♠;1-508-812-00	BASE POST (14MM) 5P
510	♠;1-508-815-00	14MM BASE POST
511	1-517-072-00	LAMP HOLDER
512	⚠.1-532-237-00	FUSE (F802,803)
513	⚠.1-532-078-00	FUSE, GLASS TUBE (F801)
514	⚠.1-551-884-00	CORD, POWER
515	♠;1-535-114-00	TERMINAL
516	♠;1-535-115-00	TERMINAL
517	♠;1-535-116-00	TERMINAL
518	♠;1-535-117-00	TERMINAL
519	♠;1-535-118-00	TERMINAL
520	♠;1-535-119-00	TERMINAL
521	♠;1-535-139-00	BASE POST 19MM (10MM PITCH)
522	1-536-662-00	TERMINAL BOARD (SPEAKER)(TM901)
523	1-536-663-00	TERMINAL BOARD (ANTENNA)
524	⚠.1-553-447-00	SWITCH, PUSH (AC POWER)(S001)

ELECTRICAL PARTS

Ref.No.	Part No.	Description
525	1-553-446-00	SWITCH, SLIDE (S502)
526	♠;1-560-060-00	PIN, CONNECTOR 2P
527	♠;1-560-061-00	PIN, CONNECTOR 3P
528	♠;1-560-062-00	PIN, CONNECTOR 4P
529	♠;1-560-063-00	PIN, CONNECTOR 5P
530	♠;1-560-064-00	PIN, CONNECTOR 6P
531	♠;1-560-338-00	PIN, CONNECTOR 7P
532	....	
533	....	
534	♠;1-605-439-00	PC BOARD, POWER IC
535	♠;1-605-440-00	PC BOARD, PIN JACK
536	....	
537	♠;1-605-442-00	PC BOARD, FUNCTION
538	♠;1-605-443-00	PC BOARD, LED
539	♠;1-605-444-00	PC BOARD, SUB SW
540	♠;1-605-445-00	PC BOARD, SP SW
541	....	
542	....	
543	♠;1-605-448-00	PC BOARD, HEADPHONE
544	♠;1-605-449-00	PC BOARD, DISPLAY
545	♠;1-605-794-00	PC BOARD, SW-3
546	⚠ 1-532-203-00	FUSE (2A)(F001)

C313	1-161-323-00	CERAMIC	0.001MF	10%	50V
C406	1-102-522-00	CERAMIC	51PF	5%	50V
C411	1-161-313-00	CERAMIC	150PF	10%	50V
C414	1-130-642-00	FILM	0.68MF	5%	50V
C416	1-102-522-00	CERAMIC	51PF	5%	50V
C604	1-130-305-00	FILM	0.022MF	5%	100V
C605	1-130-295-00	FILM	0.0082MF	5%	100V
C615	1-161-316-00	CERAMIC	270PF	10%	50V
C618	1-161-256-00	CERAMIC	5.6PF	10%	50V
C620	1-130-630-00	FILM	0.068MF	5%	50V
C621	1-108-575-00	MYLAR	0.0068MF	5%	50V
C622	1-130-641-00	FILM	0.56MF	5%	50V
C623	1-130-630-00	FILM	0.068MF	5%	50V
C654	1-130-305-00	FILM	0.022MF	5%	100V
C655	1-130-295-00	FILM	0.0082MF	5%	100V
C668	1-161-256-00	CERAMIC	5.6PF	10%	50V
C670	1-130-630-00	FILM	0.068MF	5%	50V
C671	1-108-575-00	MYLAR	0.0068MF	5%	50V
C672	1-130-641-00	FILM	0.56MF	5%	50V
C673	1-130-630-00	FILM	0.068MF	5%	50V
C705	1-161-256-00	CERAMIC	5.6PF	10%	50V
C755	1-161-256-00	CERAMIC	5.6PF	10%	50V
C801	⚠ 1-108-385-00	MYLAR	0.047MF		100V
C802	⚠.1-108-385-00	MYLAR	0.047MF		100V
C803 C804	⚠ 1-125-204-00	CERAMIC	8200MF	20%	50V

NOTE:

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- Items marked " ♠ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:

- All capacitors are in µF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:µF, PF:µµF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

COILS

- MMH : mH, UH : µH

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

ELECTRICAL PARTS

Ref.No.	Part No.	Description
C807 ⚠.	1-102-394-00	CERAMIC 0.01MF 250V
C808 ⚠.	1-102-394-00	CERAMIC 0.01MF 250V
C809 ⚠.	1-102-394-00	CERAMIC 0.01MF 250V
C810 ⚠	1-123-488-00	CERAMIC 1000MF 20% 16V
C816 ⚠	1-108-385-00	MYLAR 0.047MF 100V
C817 ⚠	1-108-385-00	MYLAR 0.047MF 100V
CF101	1-527-344-91	FILTER, CERAMIC
CF102	1-527-344-91	FILTER, CERAMIC
CF103	1-527-344-91	FILTER, CERAMIC
CF104	1-527-344-91	FILTER, CERAMIC
CF301	1-527-826-00	FILTER, CERAMIC
CF302	1-527-817-00	FILTER, CERAMIC
CNJ701	1-507-669-00	HEADPHONE JACK
CT301	1-141-180-00	CAP, TRIMMER
CT302	1-141-180-00	CAP, TRIMMER
CT303	1-141-181-21	CAP, TRIMMER
CT304	1-141-181-21	CAP, TRIMMER
D101	8-719-815-55	DIODE 1S1555
D204	8-719-900-92	DIODE GL-9PR20
D301	8-719-912-27	DIODE KV1226
D302	8-719-912-00	DIODE MV12N
D303	8-719-815-55	DIODE 1S1555
D304	8-719-815-55	DIODE 1S1555
D305	8-719-815-55	DIODE 1S1555
D306	8-719-815-55	DIODE 1S1555
D307	8-719-815-55	DIODE 1S1555
D308	8-719-815-55	DIODE 1S1555
D309	8-719-815-55	DIODE 1S1555
D310	8-719-815-55	DIODE 1S1555
D311	8-719-815-55	DIODE 1S1555
D312	8-719-815-55	DIODE 1S1555
D313	8-719-912-77	DIODE KV1226
D401	8-719-815-55	DIODE 1S1555
D402	8-719-815-55	DIODE 1S1555
D403	8-719-815-55	DIODE 1S1555
D404	8-719-815-55	DIODE 1S1555
D405	8-719-815-55	DIODE 1S1555
D406	8-719-815-55	DIODE 1S1555
D407	8-719-815-55	DIODE 1S1555
D408	8-719-815-55	DIODE 1S1555
D409	8-719-815-55	DIODE 1S1555
D410	8-719-815-55	DIODE 1S1555
D501	8-719-815-55	DIODE 1S1555
D503	8-719-815-55	DIODE 1S1555
D504	8-719-815-55	DIODE 1S1555
D505	8-719-815-55	DIODE 1S1555
D506	8-719-815-55	DIODE 1S1555
D507	8-719-815-55	DIODE 1S1555
D508	8-719-909-20	DIODE GL-9NG2
D509	8-719-909-20	DIODE GL-9NG2
D510	8-719-909-20	DIODE GL-9NG2
D511	8-719-900-66	DIODE GL-5NY55-A
D512	8-719-900-66	DIODE GL-5NY55-A
D513	8-719-815-55	DIODE 1S1555
D514	8-719-900-66	DIODE GL-5NY55-A
D515	8-719-900-66	DIODE GL-5NY55-A
D516	8-719-900-66	DIODE GL-5NY55-A
D517	8-719-900-66	DIODE GL-5NY55-A
D518	8-719-900-66	DIODE GL-5NY55-A
D519	8-719-900-66	DIODE GL-5NY55-A
D520	8-719-815-55	DIODE 1S1555
D521	8-719-815-55	DIODE 1S1555
D523	8-719-815-55	DIODE 1S1555
D525	8-719-909-20	DIODE GL-9NG2
D526	8-719-909-20	DIODE GL-9NG2
D527	8-719-909-20	DIODE GL-9NG2
D528	8-719-909-20	DIODE GL-9NG2
D529	8-719-909-20	DIODE GL-9NG2
D534	8-719-815-55	DIODE 1S1555
D535	8-719-815-55	DIODE 1S1555
D601	8-719-930-95	DIODE GL-3NG95
D602	8-719-930-95	DIODE GL-3NG95
D603	8-719-930-95	DIODE GL-3NG95
D604	8-719-930-95	DIODE GL-3NG95
D605	8-719-930-95	DIODE GL-3NG95
D606	8-719-903-05	DIODE GL-3PR5
D701	8-719-815-55	DIODE 1S1555
D702	8-719-200-02	DIODE 10E-2
D703	8-719-815-55	DIODE 1S1555
D753	8-719-815-55	DIODE 1S1555
D801 ⚠.	8-719-504-20	DIODE S4VB20
D802 ⚠.	8-719-200-02	DIODE 10E-2
D803 ⚠.	8-719-200-02	DIODE 10E-2
D804 ⚠.	8-719-200-02	DIODE 10E-2
D805 ⚠.	8-719-200-02	DIODE 10E-2
D806 ⚠	8-719-200-02	DIODE 10E-2
D807 ⚠	8-719-200-02	DIODE 10E-2
D808	8-719-910-71	DIODE HZ7A1L
D851	8-719-913-03	DIODE HZ30-3L
D852	8-719-910-62	DIODE HZ6A2L
D853	8-719-913-03	DIODE HZ30-3L
D854	8-719-815-55	DIODE 1S1555
D855	8-719-910-62	DIODE HZ6A2L

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- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:
- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

COILS
- MMH : mH, UH : μH

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

ELECTRICAL PARTS

Ref.No.	Part No.	Description
FE101	1-463-369-00	FN FRONT END
FLD501	1-519-209-21	INDICATOR TUBE, FLUORESCENT
IC101	8-759-812-35	IC LA1235
IC201	8-759-833-90	IC LA3390
IC301	8-759-812-45	IC LA1245
IC401	8-759-131-31	IC UPD553C131
IC402	8-757-611-00	IC CX-761A
IC403	8-759-140-11	IC UPD4011C
IC404	8-759-617-78	IC CX-778A
IC405	8-759-140-13	IC UPD4013C
IC501	8-759-100-67	IC UPA67C
IC502	8-759-100-67	IC UPA67C
IC503	8-759-904-89	IC TL489CP
IC601	8-759-145-57	IC UPC4557C
IC701	8-759-830-42	IC STK-3042
IC702	8-759-822-30	IC STK-2230
IFT301	1-404-326-00	TRANSFORMER, IF
L301	1-407-169-XX	MICRO INDUCTOR 100UH
L303	1-405-927-00	COIL, MW OSC
L601	1-407-519-00	INDUCTOR
L651	1-407-519-00	INDUCTOR
L701	♠;1-420-838-00	COIL
L751	♠;1-420-838-00	COIL
LPF201	1-235-062-00	FILTER, LOW PASS
Q101	8-729-671-14	TRANSISTOR 2SC710-14
Q102	8-729-671-14	TRANSISTOR 2SC710-14
Q103	8-729-671-14	TRANSISTOR 2SC710-14
Q104	8-729-671-14	TRANSISTOR 2SC710-14
Q105	8-729-671-14	TRANSISTOR 2SC710-14
Q106	8-729-671-14	TRANSISTOR 2SC710-14
Q107	8-729-663-47	TRANSISTOR 2SC1364
Q201	8-729-663-47	TRANSISTOR 2SC1364
Q202	8-729-663-47	TRANSISTOR 2SC1364
Q301	8-729-663-47	TRANSISTOR 2SC1364
Q302	8-729-663-47	TRANSISTOR 2SC1364
Q303	8-729-663-47	TRANSISTOR 2SC1364
Q304	8-729-663-47	TRANSISTOR 2SC1364
Q305	8-729-663-47	TRANSISTOR 2SC1364
Q306	8-729-201-52	TRANSISTOR 2SA1015
Q307	8-729-663-47	TRANSISTOR 2SC1364
Q308	8-729-663-47	TRANSISTOR 2SC1364
Q309	8-729-663-47	TRANSISTOR 2SC1364

ELECTRICAL PARTS

Ref.No.	Part No.	Description
Q310	8-729-663-47	TRANSISTOR 2SC1364
Q311	8-729-201-52	TRANSISTOR 2SA1015
Q312	8-729-663-47	TRANSISTOR 2SC1364
Q313	8-729-663-47	TRANSISTOR 2SC1364
Q314	8-729-663-47	TRANSISTOR 2SC1364
Q315	8-729-663-47	TRANSISTOR 2SC1364
Q316	8-729-663-47	TRANSISTOR 2SC1364
Q317	8-729-201-52	TRANSISTOR 2SA1015
Q318	8-729-663-47	TRANSISTOR 2SC1364
Q319	8-729-663-47	TRANSISTOR 2SC1364
Q401	8-729-663-47	TRANSISTOR 2SC1364
Q402	8-729-663-47	TRANSISTOR 2SC1364
Q404	8-729-203-05	TRANSISTOR 2SK30AGR3
Q405	8-729-663-47	TRANSISTOR 2SC1364
Q406	8-729-201-52	TRANSISTOR 2SA1015
Q407	8-729-663-47	TRANSISTOR 2SC1364
Q408	8-729-663-47	TRANSISTOR 2SC1364
Q409	8-729-201-52	TRANSISTOR 2SA1015
Q410	8-729-203-05	TRANSISTOR 2SK30AGR3
Q411	8-729-663-47	TRANSISTOR 2SC1364
Q412	8-729-663-47	TRANSISTOR 2SC1364
Q413	8-729-201-52	TRANSISTOR 2SA1015
Q501	8-729-245-83	TRANSISTOR 2SC2458
Q502	8-729-245-83	TRANSISTOR 2SC2458
Q503	8-729-245-83	TRANSISTOR 2SC2458
Q504	8-729-245-83	TRANSISTOR 2SC2458
Q601	8-729-140-02	TRANSISTOR 2SC1400
Q602	8-729-140-02	TRANSISTOR 2SC1400
Q603	8-729-140-02	TRANSISTOR 2SC1400
Q604	8-729-140-02	TRANSISTOR 2SC1400
Q605	8-729-612-77	TRANSISTOR 2SA1027R
Q606	8-729-245-83	TRANSISTOR 2SC2458
Q651	8-729-140-02	TRANSISTOR 2SC1400
Q652	8-729-140-02	TRANSISTOR 2SC1400
Q653	8-729-140-02	TRANSISTOR 2SC1400
Q654	8-729-140-02	TRANSISTOR 2SC1400
Q655	8-729-612-77	TRANSISTOR 2SA1027R
Q656	8-729-245-83	TRANSISTOR 2SC2458
Q701	8-729-201-52	TRANSISTOR 2SA1015
Q702	8-729-663-47	TRANSISTOR 2SC1364
Q703	8-729-663-47	TRANSISTOR 2SC1364
Q704	8-729-663-47	TRANSISTOR 2SC1364
Q705	8-729-663-47	TRANSISTOR 2SC1364
Q706	8-729-663-47	TRANSISTOR 2SC1364
Q707	8-729-201-52	TRANSISTOR 2SA1015

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CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

COILS

- MMH : mH, UH : μH

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ELECTRICAL PARTS

Ref.No.	Part No.	Description
Q751	8-729-201-52	TRANSISTOR 2SA1015
Q757	8-729-201-52	TRANSISTOR 2SA1015
Q801	8-729-398-62	TRANSISTOR 2SC1986
Q802	8-729-173-13	TRANSISTOR 2SB731
Q803	8-729-224-61	TRANSISTOR 2SK246
Q804	8-729-224-61	TRANSISTOR 2SK246
Q805	8-729-663-47	TRANSISTOR 2SC1364
Q806	8-729-201-52	TRANSISTOR 2SA1015
Q807	8-729-180-93	TRANSISTOR 2SD809
Q851	8-729-224-61	TRANSISTOR 2SK246
Q852	8-729-306-72	TRANSISTOR 2SD667-A
Q853	8-729-398-62	TRANSISTOR 2SC1986
Q854	8-729-663-47	TRANSISTOR 2SC1364
Q855	8-729-663-47	TRANSISTOR 2SC1364
Q856	8-729-201-52	TRANSISTOR 2SA1015
Q857	8-729-283-42	TRANSISTOR 2SB834
Q858	8-729-364-71	TRANSISTOR 2SB647-B
R120	1-244-945-00	CARBON 1M 5% 1/2W
R301	1-244-891-00	CARBON 5.6K 5% 1/2W
R469	1-244-883-00	CARBON 2.7K 5% 1/2W
R705 ⚠	1-247-097-00	CARBON 39 5% 1/4W F
R708 ⚠	1-244-817-00	CARBON 4.7 5% 1/2W
R709	1-244-825-00	CARBON 10 5% 1/2W
R716	1-244-875-00	CARBON 1.2K 5% 1/2W
R720 ⚠	1-247-097-00	CARBON 39 5% 1/4W F
R723 ⚠	1-247-107-00	CARBON 100 5% 1/4W F
R749 R799 ⚠	1-206-660-00	METAL 680 5% 2W F
R801 ⚠	1-247-192-00	CARBON 10 5% 1/2W F
R802 ⚠	1-247-111-00	CARBON 150 5% 1/4W F
R806 ⚠	1-247-188-00	CARBON 4.7 5% 1/2W F
R807	1-244-821-00	CARBON 6.8 5% 1/2W
R808 ⚠	1-206-646-00	METAL 180 5% 2W F
R810 ⚠	1-247-083-00	CARBON 10 5% 1/4W F
R811 ⚠	1-247-079-00	CARBON 4.7 5% 1/4W F
R812 ⚠	1-206-646-00	METAL 180 5% 2W F
R813	1-244-871-00	CARBON 820 5% 1/2W
R862	1-244-839-00	CARBON 39 5% 1/2W
R863 ⚠	1-206-646-00	METAL 180 5% 2W F
R864	1-244-849-00	CARBON 100 5% 1/2W
R865	1-244-861-00	CARBON 330 5% 1/2W
RT101	1-226-235-00	RES, ADJ, CARBON 5K
RT102	1-226-238-00	RES, ADJ, CARBON 50K
RT201	1-226-236-00	RES, ADJ, CARBON 10K

ELECTRICAL PARTS

Ref.No.	Part No.	Description
RT202	1-226-238-00	RES, ADJ, CARBON 50K
RT301	1-226-238-00	RES, ADJ, CARBON 50K
RT302	1-226-236-00	RES, ADJ, CARBON 10K
RT701	1-226-238-00	RES, ADJ, CARBON 50K
RT751	1-226-238-00	RES, ADJ, CARBON 50K
RV601	1-228-245-00	RES, VAR, CARBON 250K/250K
RV602	1-228-319-00	RES, VAR, CARBON 100K/100K
RV603	1-228-322-00	RES, VAR, CARBON (TREBLE)20K/20K
RV604	1-228-323-00	RES, VAR, CARBON (BASS)21K/21K
RV651	1-228-245-00	RES, VAR, CARBON 250K/250K
RV652	1-228-319-00	RES, VAR, CARBON 100K/100K
RV653	1-228-322-00	RES, VAR, CARBON (TREBLE)20K/20K
RV654	1-228-323-00	RES, VAR, CARBON (BASS)21K/21K
RY701	1-515-348-00	RELAY
S501	1-552-539-00	SWITCH, KEY BOARD
S502	1-552-539-00	SWITCH, KEY BOARD
S503	1-552-539-00	SWITCH, KEY BOARD
S504	1-552-539-00	SWITCH, KEY BOARD
S505	1-552-539-00	SWITCH, KEY BOARD
S506	1-552-539-00	SWITCH, KEY BOARD
S507	1-552-539-00	SWITCH, KEY BOARD
S508	1-552-539-00	SWITCH, KEY BOARD
S509	1-552-539-00	SWITCH, KEY BOARD
S510	1-552-539-00	SWITCH, KEY BOARD
S511	1-552-539-00	SWITCH, KEY BOARD
S512	1-552-539-00	SWITCH, KEY BOARD
S513	1-552-539-00	SWITCH, KEY BOARD
S514	1-552-539-00	SWITCH, KEY BOARD
S515	1-552-539-00	SWITCH, KEY BOARD
S601	1-553-787-00	SWITCH, PUSH (6 KEY)
S602	1-553-787-00	SWITCH, PUSH (6 KEY)
S603	1-553-787-00	SWITCH, PUSH (6 KEY)
S604	1-553-787-00	SWITCH, PUSH (6 KEY)
S605	1-553-787-00	SWITCH, PUSH (6 KEY)
S606	1-553-787-00	SWITCH, PUSH (6 KEY)
S607	1-553-786-00	SWITCH, PUSH (3 KEY)
S608	1-553-786-00	SWITCH, PUSH (3 KEY)
S609	1-553-786-00	SWITCH, PUSH (3 KEY)
S701	1-553-761-00	SWITCH, PUSH (2 KEY)
S702	1-553-761-00	SWITCH, PUSH (2 KEY)
TM901	1-507-637-21	JACK, PIN 6P
TM902	1-507-637-21	JACK, PIN 6P
X401	1-527-731-00	OSCILLATOR, CRYSTAL

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- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

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ELECTROLYTIC CAPACITORS

RATING →: Use the high voltage rated one.

CAP. (µF)	6.3 VOLT.	10 VOLT.	16 VOLT.	25 VOLT	35 VOLT.	50 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.47					→	1-121-726-00
1.0					→	1-121-391-00
2.2					→	1-121-450-00
3.3	→	→	→	1-121-392-00	→	1-121-393-00
4.7	→	→	→	1-121-395-00	→	1-121-396-00
10	→	→	1-121-651-00	1-121-398-00	→	1-121-738-00
22	→	→	1-121-479-00	1-121-480-00	1-121-662-00	1-121-152-00
33	→	→	1-121-403-00	1-121-404-00	1-121-652-00	1-121-405-00
47	→	1-121-352-00	1-121-409-00	1-121-410-00	1-121-653-00	1-121-411-00
100	→	1-121-414-00	1-121-415-00	1-121-416-00	1-121-357-00	1-121-417-00
220	1-121-419-00	1-121-420-00	1-121-421-00	1-121-422-00	1-121-261-00	1-121-423-00
330	1-121-751-00	1-121-805-00	1-121-521-00	1-121-654-00	1-121-655-00	1-121-656-00
470	1-121-424-00	1-121-425-00	1-121-426-00	1-121-733-00	1-121-361-00	1-121-810-00
1000	–	1-121-736-00	1-121-245-00	1-121-657-00	1-121-388-00	1-123-061-00
2200	1-121-658-00	1-121-659-00	1-121-660-00	1-123-067-00	1-121-984-00	–
3300	1-121-661-00	1-123-075-00	1-123-071-00	–	–	–

CAP. (µF)	100 VOLT.	160 VOLT.	250 VOLT.	350 VOLT.
	PART No.	PART No.	PART No.	PART No.
0.47	–	–	–	–
1.0	1-123-249-00	1-123-252-00	1-123-003-00	1-121-168-00
2.2	1-123-250-00	1-123-026-00	–	1-123-028-00
3.3	1-121-995-00	–	1-123-004-00	1-123-006-00
4.7	1-123-255-00	1-121-246-00	1-121-759-00	1-123-007-00
10	1-121-126-00	1-121-999-00	1-123-254-00	1-123-008-00
22	1-121-996-00	1-123-253-00	1-123-005-00	1-123-022-00
33	1-121-997-00	1-121-757-00	–	–
47	1-123-251-00	1-121-919-00	–	–
100	1-123-084-00	–	–	–

CERAMIC CAPACITORS

RATING

CAP. (pF)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (µF)	50 VOLT.
	PART No.		PART No.		PART No.		PART No.
0.5	1-101-837-00	22	1-102-959-00	150	1-101-361-00	0.001	1-102-074-00
0.75	1-101-586-00	24	1-102-960-00	160	1-101-367-00	0.0012	1-102-118-00
1.0	1-102-934-00	27	1-102-961-00	180	1-102-976-00	0.0015	1-102-119-00
1.5	1-101-576-00	30	1-102-962-00	200	1-102-977-00	0.0018	1-102-120-00
2.0	1-102-935-00	33	1-102-963-00	220	1-102-978-00	0.0022	1-102-121-00
3	1-102-936-00	36	1-102-964-00	240	1-102-979-00	0.0027	1-102-122-00
4	1-102-937-00	39	1-102-965-00	270	1-102-980-00	0.0033	1-102-123-00
5	1-102-942-00	43	1-102-966-00	300	1-102-981-00	0.0039	1-102-124-00
6	1-102-943-00	47	1-101-880-00	330	1-102-820-00	0.0047	1-102-125-00
7	1-102-944-00	51	1-101-882-00	360	1-102-821-00	0.0056	1-102-126-00
8	1-102-945-00	56	1-101-884-00	390	1-102-822-00	0.0068	1-102-127-00
9	1-102-946-00	62	1-101-886-00	430	1-102-823-00	0.0082	1-102-128-00
10	1-102-947-00	68	1-101-888-00	470	1-102-824-00	0.01	1-102-129-00
11	1-102-948-00	75	1-101-890-00	510	1-101-059-00	0.022	1-101-005-00
12	1-102-949-00	82	1-102-971-00	560	1-102-115-00	0.047	1-101-006-00
13	1-102-950-00	91	1-102-972-00	680	1-102-116-00		
15	1-102-951-00	100	1-102-973-00	820	1-102-117-00		
16	1-102-952-00	110	1-102-815-00				
18	1-102-953-00	120	1-102-816-00				
20	1-102-958-00	130	1-101-081-00				

0.001µF = 1,000pF

CERAMIC (SEMICONDUCTOR) CAPACITORS

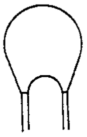
RATING →: Use the high voltage rated one.

CAP. (µF)	25 VOLT.	50 VOLT.	CAP. (µF)	25 VOLT.	50 VOLT.
	PART No.	PART No.		PART No.	PART No.
0.001	→	1-161-039-00	0.018	1-161-016-00	1-161-054-00
0.0012	→	1-161-040-00	0.022	1-161-017-00	1-161-055-00
0.0015		1-161-041-00	0.027	1-161-018-00	1-161-056-00
0.0018		1-161-042-00	0.033	1-161-019-00	1-161-057-00
0.0022		1-161-043-00	0.039	1-161-010-00	1-161-058-00
0.0027	→	1-161-044-00	0.047	1-161-021-00	1-161-059-00
0.0033	→	1-161-045-00	0.056	→	1-161-060-00
0.0039	→	1-161-046-00	0.068	→	1-161-061-00
0.0047	→	1-161-047-00	0.082	1-161-024-00	1-161-062-00
0.0056	→	1-161-048-00	0.1	1-161-025-00	1-161-063-00
0.0068	→	1-161-049-00			
0.0082	1-161-012-00	1-161-050-00			
0.01	1-161-013-00	1-161-051-00			
0.012	→	1-161-052-00			
0.015	1-161-015-00	1-161-053-00			

MYLAR CAPACITORS

	RATING										
CAP. (μF)	50 VOLT.	100 VOLT.	200 VOLT.	CAP. (μF)	50 VOLT.	100 VOLT.	200 VOLT.	CAP. (μF)	50 VOLT.	100 VOLT.	200 VOLT.
	PART No.	PART No.	PART No.		PART No.	PART No.	PART No.		PART No.	PART No.	PART No.
0.001	1-108-227-00	1-108-365-00	1-108-409-00	0.01	1-108-239-00	1-108-377-00	1-108-421-00	0.1	1-108-251-00	1-108-389-00	1-108-433-00
0.0012	1-108-351-00	1-108-366-00	1-108-410-00	0.012	1-108-357-00	1-108-378-00	1-108-422-00	0.12	1-108-363-00	1-108-390-00	1-108-434-00
0.0015	1-108-228-00	1-108-367-00	1-108-411-00	0.015	1-108-240-00	1-108-379-00	1-108-423-00	0.15	1-108-252-00	1-108-391-00	1-108-435-00
0.0018	1-108-352-00	1-108-368-00	1-108-412-00	0.018	1-108-358-00	1-108-380-00	1-108-424-00	0.18	1-108-364-00	1-108-392-00	1-108-436-00
0.0022	1-108-230-00	1-108-369-00	1-108-413-00	0.022	1-108-242-00	1-108-381-00	1-108-425-00	0.22	1-108-254-00	1-108-393-00	1-108-437-00
0.0027	1-108-353-00	1-108-370-00	1-108-414-00	0.027	1-108-359-00	1-108-382-00	1-108-426-00	0.27	1-108-854-00	–	–
0.0033	1-108-232-00	1-108-371-00	1-108-415-00	0.033	1-108-244-00	1-108-383-00	1-108-427-00	0.33	1-108-855-00	–	–
0.0039	1-108-354-00	1-108-372-00	1-108-416-00	0.039	1-108-360-00	1-108-384-00	1-108-428-00	0.39	1-108-856-00	–	–
0.0047	1-108-234-00	1-108-373-00	1-108-417-00	0.047	1-108-246-00	1-108-385-00	1-108-429-00	0.47	1-108-857-00	–	–
0.0056	1-108-355-00	1-108-374-00	1-108-418-00	0.056	1-108-361-00	1-108-386-00	1-108-430-00				
0.0068	1-108-237-00	1-108-375-00	1-108-419-00	0.068	1-108-249-00	1-108-387-00	1-108-431-00				
0.0082	1-108-356-00	1-108-376-00	1-108-420-00	0.082	1-108-362-00	1-108-388-00	1-108-432-00				

TANTALUM CAPACITORS



	RATING				→: Use the high voltage rated one.		
CAP. (μF)	3.15 VOLT.	6.3 VOLT.	10 VOLT.	16 VOLT.	20 VOLT.	25 VOLT.	35 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.01					→	→	1-131-396-00
0.015						→	1-131-397-00
0.022						→	1-131-398-00
0.033						→	1-131-399-00
0.047						→	1-131-400-00
0.068					→	→	1-131-401-00
0.1					→	→	1-131-402-00
0.15					→	→	1-131-403-00
0.22					→	→	1-131-404-00
0.33					→	1-131-409-00	1-131-405-00
0.47	–	–	–	–	1-131-412-00	→	1-131-406-00
0.68	–	–	–	1-131-415-00	→	1-131-410-00	1-131-407-00
1.0	–	–	1-131-418-00	–	1-131-413-00	→	1-131-408-00
1.5	–	1-131-421-00	–	1-131-416-00	→	1-131-411-00	1-131-348-00
2.2	1-131-424-00	–	1-131-419-00	–	1-131-414-00	1-131-355-00	1-131-349-00
3.3	–	1-131-422-00	–	1-131-417-00	1-131-362-00	1-131-356-00	1-131-350-00
4.7	1-131-425-00	–	1-131-420-00	1-131-369-00	1-131-363-00	1-131-357-00	1-131-351-00
6.8	–	1-131-423-00	1-131-376-00	1-131-370-00	1-131-364-00	1-131-358-00	1-131-352-00
10	1-131-426-00	1-131-383-00	1-131-377-00	1-131-371-00	1-131-365-00	1-131-359-00	1-131-353-00
15	1-131-390-00	1-131-384-00	1-131-378-00	1-131-372-00	1-131-366-00	1-131-360-00	–
22	1-131-391-00	1-131-385-00	1-131-379-00	1-131-373-00	1-131-367-00		
33	1-131-392-00	1-131-386-00	1-131-380-00	1-131-374-00			
47	1-131-393-00	1-131-387-00	1-131-381-00	–			
68	1-131-394-00	1-131-388-00	–	–			
100	1-131-395-00	–	–	–			

TANTALUM CAPACITORS

	RATING					
CAP. (μF)	3 VOLT.	6.3 VOLT.	10 VOLT.	16 VOLT.	20 VOLT.	35 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.033						1-131-273-00
0.047						1-131-274-00
0.068						1-131-275-00
0.1						1-131-276-00
0.15						1-131-277-00
0.22			–	–	1-131-262-00	1-131-278-00
0.33			–	–	1-131-263-00	1-131-279-00
0.47			1-131-169-00	–	1-131-264-00	1-131-280-00
0.68			–	1-131-258-00	1-131-265-00	1-131-281-00
1.0			1-131-254-00	–	1-131-266-00	1-131-282-00
1.5		1-131-250-00	–	–	1-131-267-00	1-131-283-00
2.2		–	–	1-131-259-00	1-131-268-00	1-131-284-00
3.3		–	1-131-255-00	–	1-131-269-00	–
4.7		1-131-251-00	1-131-171-00	–	1-131-270-00	–
6.8		–	–	1-131-260-00	1-131-271-00	–
10	–	–	1-131-256-00	–	1-131-272-00	–
15	–	1-131-252-00	–	1-131-261-00		
22	–	–	1-131-257-00	–		
33	1-131-176-00	1-131-253-00	1-131-173-00	–		
47	1-131-288-00	1-131-174-00	–	–		
100	1-131-177-00					

1/4 WATT CARBON RESISTORS

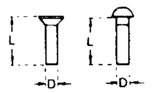
Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.
1.0	1-246-401-00	10	1-246-425-00	100	1-246-449-00	1.0k	1-246-473-00	10k	1-246-497-00	100k	1-246-521-00	1.0M	1-246-545-00
1.1	1-246-402-00	11	1-246-426-00	110	1-246-450-00	1.1k	1-246-474-00	11k	1-246-498-00	110k	1-246-522-00	1.1M	1-210-814-00
1.2	1-246-403-00	12	1-246-427-00	120	1-246-451-00	1.2k	1-246-475-00	12k	1-246-499-00	120k	1-246-523-00	1.2M	1-210-815-00
1.3	1-246-404-00	13	1-246-428-00	130	1-246-452-00	1.3k	1-246-476-00	13k	1-246-500-00	130k	1-246-524-00	1.3M	1-210-816-00
1.5	1-246-405-00	15	1-246-429-00	150	1-246-453-00	1.5k	1-246-477-00	15k	1-246-501-00	150k	1-246-525-00	1.5M	1-210-817-00
1.6	1-246-406-00	16	1-246-430-00	160	1-246-454-00	1.6k	1-246-478-00	16k	1-246-502-00	160k	1-246-526-00	1.6M	1-210-818-00
1.8	1-246-407-00	18	1-246-431-00	180	1-246-455-00	1.8k	1-246-479-00	18k	1-246-503-00	180k	1-246-527-00	1.8M	1-210-819-00
2.0	1-246-408-00	20	1-246-432-00	200	1-246-456-00	2.0k	1-246-480-00	20k	1-246-504-00	200k	1-246-528-00	2.0M	1-210-820-00
2.2	1-246-409-00	22	1-246-433-00	220	1-246-457-00	2.2k	1-246-481-00	22k	1-246-505-00	220k	1-246-529-00	2.2M	1-210-821-00
2.4	1-246-410-00	24	1-246-434-00	240	1-246-458-00	2.4k	1-246-482-00	24k	1-246-506-00	240k	1-246-530-00	2.4M	1-244-754-00
2.7	1-246-411-00	27	1-246-435-00	270	1-246-459-00	2.7k	1-246-483-00	27k	1-246-507-00	270k	1-246-531-00	2.7M	1-244-755-00
3.0	1-246-412-00	30	1-246-436-00	300	1-246-460-00	3.0k	1-246-484-00	30k	1-246-508-00	300k	1-246-532-00	3.0M	1-244-756-00
3.3	1-246-413-00	33	1-246-437-00	330	1-246-461-00	3.3k	1-246-485-00	33k	1-246-509-00	330k	1-246-533-00	3.3M	1-244-757-00
3.6	1-246-414-00	36	1-246-438-00	360	1-246-462-00	3.6k	1-246-486-00	36k	1-246-510-00	360k	1-246-534-00	3.6M	1-244-758-00
3.9	1-246-415-00	39	1-246-439-00	390	1-246-463-00	3.9k	1-246-487-00	39k	1-246-511-00	390k	1-246-535-00	3.9M	1-244-759-00
4.3	1-246-416-00	43	1-246-440-00	430	1-246-464-00	4.3k	1-246-488-00	43k	1-246-512-00	430k	1-246-536-00	4.3M	1-244-760-00
4.7	1-246-417-00	47	1-246-441-00	470	1-246-465-00	4.7k	1-246-489-00	47k	1-246-513-00	470k	1-246-537-00	4.7M	1-244-761-00
5.1	1-246-418-00	51	1-246-442-00	510	1-246-466-00	5.1k	1-246-490-00	51k	1-246-514-00	510k	1-246-538-00	5.1M	1-244-762-00
5.6	1-246-419-00	56	1-246-443-00	560	1-246-467-00	5.6k	1-246-491-00	56k	1-246-515-00	560k	1-246-539-00		
6.2	1-246-420-00	62	1-246-444-00	620	1-246-468-00	6.2k	1-246-492-00	62k	1-246-516-00	620k	1-246-540-00		
6.8	1-246-421-00	68	1-246-445-00	680	1-246-469-00	6.8k	1-246-493-00	68k	1-246-517-00	680k	1-246-541-00		
7.5	1-246-422-00	75	1-246-446-00	750	1-246-470-00	7.5k	1-246-494-00	75k	1-246-518-00	750k	1-246-542-00		
8.2	1-246-423-00	82	1-246-447-00	820	1-246-471-00	8.2k	1-246-495-00	82k	1-246-519-00	820k	1-246-543-00		
9.1	1-246-424-00	91	1-246-448-00	910	1-246-472-00	9.1k	1-246-496-00	91k	1-246-520-00	910k	1-246-544-00		

HARDWARE NOMENCLATURE

Screw: – P 3 x 10

- L: *Length in mm*
- D: *Diameter in mm*
- *Type of head*
- *Indicated slotted-head only.*

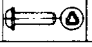
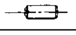
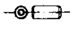
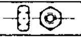
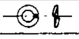
Unless otherwise indicated, it means cross-recessed head (Phillips type).



Reference Designation	Shape	Description	Remarks
		SCREWS	
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		braizer-head screw	

Nut, Washer, Retaining ring: N 3

- *Diameter of usable screw or shaft*
- *Reference designation*

Reference Designation	Shape	Description	Remarks
		SELF-TAPPING SCREWS	
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
		SET SCREWS	
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
		NUT	
N		nut	
		WASHERS	
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
		RETAINING RINGS	
E		retaining ring	
G		grip-type retaining ring	

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